Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (2) and Governors

WPP 001/4 MAN 11,1 r 3 2. Edition

PES 6 P 120 A 720 LS 388

RQ 250/1050 PA 452

supersedes 9_82

company: MAN

Komb.-Nr. 0 402 046 244

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

D 2566 MKF 235 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,0-3,1Fort closing at prestroke (2.95-3.15)

mm (from BDC) Cy1. 6: RW = 9.0-12.0 mm

	, ,	£,33-3,13/		0,110	, 1111 - 3,0 12	0 11411
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
750	13,1+0,1	21,7-22,0	0,5 (0,9			
250	6,3-6,5	1,1-1,7	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	()	Full-load Setting p		-	cifications (4)	Idle spe Setting (_		cifications (5)	Torque		<u>(3</u>
rev/min 1	Control rod travel mm	rev/min 3	Control rod travel mm	Control rod travel mm 5	rev/min	rev/min 7	Control rod travel		Control rod travel mm 10	rev/min 11	Control rod travel	હ
600 VH =	19,2-20,8 max. 46°	600	20,0		1175-1205		6,4	100 250 340-	min. 7,9 6,3-6,5 80 = 2,0	750 890	11,3-11, 13,1-13, 12,7-12, 11,7-12,	2
orgue-c	ontrol travel		0,7					1099	5-1110 min	-1	1 mm less co	

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop (3a)	Fuel deliv	ery characteristics	Starting f	uel delivery
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min	Control rod travel cm ³ /1000 strokes:/ mm
LDA 750 LDA 1050	1,0 bar 217,0-220,0 (214,0-223,0) 1,0 bar 180,0-186,0 (177,0-189,0)	-	LDA 500 LDA 500	0,34 bar 144,0-150,0 (141,0-153,0) 0 bar 101,0-104,0 (98,0-107,0)	100	205,0-225,0 (201,0-229,0)

Checking values in brackets

7.83

BOSCH

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Test at n =

rev/min decreasing pressure - in bar gauge pressure

MAN 11,1 r 3

500	increasing pressure - in	nai dande hiessaie	MAN 11,1 1
Pump/governo:	Setting	Measurement	Control rod travel-difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P LS 388 mit RQPA 452	0,34	1,0 0 0,61	13,1-13,2 9,4-9,5 10,5-10,6 12,1-12,4

Notes

(1) when n =

rev/min and gauge pressure =

②

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 RVI 14,9 a

2. Edition

estoil-ISO 4113

PES 8 P 120 A 320 RS 437 RQ 750 PA 596

Komb.-Nr. O 402 048 038

1 - 8 - 4 - 2 - 7 - 3 - 6 - 5 je 45° ± 0,5° (0,75°)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,75-2,95) mm (from BDC)

Cy1. 5

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	អោញ	cm³/100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
700	13,1+0,1	26,7 - 26,9	0,5(0,9)			
250	5,0-5,2	1,5 - 2,1	0,8(1,2)			
						1

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of stider	Full-load	speed re	gulation		Idle spe	ed regula	ation		Torque	control
		Setting p	oi nt	Test spe	cifications	Setting p	ooint	Test spe	cifications	1	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm	rev/min 5	Control rod travel mm 6		Control rod travel rnm 8	rev/min	Control rod travel mm 10	rev/min	Control rod travel mm 12
-	-	-	-	12,1 4,0 900	750-755 776-789 O - 1,0	-	-	-	-	-	-

Torque-control travel on flyweight assembly dimension a =

Speed regulation. At

750-755 min-1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	lelivery on control lever np 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics	Starting	luel delivery
rev/min	cm³/-1000 strokes	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm ³ /1 000 strokes 7
700	26 7 , 0-269, 0 (264, 0-272, 0)	-	-	-	100	19,5-21,0 mm RW

Checking values in brackets

7.83

BOSCH

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WPP 001/4 DAF 11,6 u 7

2. Edition

PE 6 P 110 A 720 RS 441 Komb.-Nr. 0 401 876 301

RSV 250-1200 P5 A 509

supersedes 1.85
company DAF
engine DHS 825
184 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95)

mm (from BDC)

; RW = 9,0-12,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travei	Fuel delivery	Spring pre tensioning (torque control valve)
ten/wiu	mm (2)	cm 1/100 strokes	cm ¹ / 100 strokes	mm	cm/100 strokes	mm
1	2	3	4	2	3	6
1 000	12,2+0,1	13,7-13,9	0,4(0,75)			
250	5,0-5,2	0,7-1,2	0,45(0,75			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Uppe Degree of		Control rod	Interme	ediate rated	d speed	(4) Control	Lower	rated speed [Control rod	3 Torque control		
deflection of control	travel mm	travel mm rev/min				lever deflection	rev/min	travel mm	rev/min	travel mm	
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11	
loose	800 0	,3-0,7	-	-	-	ca.24	250	4,6	1000	12,4-12,5	
	Χ =	5,0					250	5,0-5,2 95 = 2,0	400 300		
ca.58	4,0	1240-1250 1330-1360 0,3-1,4					333-3	75 = 2,U	300	12,7-13,2	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	emp 40°C (104°F)	Rotational- speed limitat	3 fu	iel delivery paracteristics	Starting til	fuel delivery 5	(4a) Idi	e stop
rev/min	cm ¹ /1000 strokes	changed to) rev/min 3	rev/min 4	cm#1000 strokes 5	rev/min	cm:/1000 strakes 7	rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 137,0-139,0 (134,5-141,5)	1240-1250*	LDA 600	0 bar 92,0-94,0 (89,5-96,5)	100 250	245,0-285 (241,0-289 7,0-12,0 (4,5-14,5)	,0)	•

Checking values in brackets

* 1 mm less control rod travel than col 2

4.86

BOSCH

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rev/min decreasing pressure - in bar gauge pressure Test at n = Pump/governor Setting Measurement diminution Control rod traveldifference Gauge pressure = Gauge pressure = (1) 12,2-12,3 10,3-10,4 11,7-11,8 10,6-11,0 PE 6 P..RS 441 + RSV..P5 A 509 0,70 0,36 0,27

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

DAF 11,6 u. 7

WPP 001/4 KHD 15,2g5

1. Edition

En

PE6P 130 A 420 LS 484

RSUV 300-750 POA 347-3

supersedes

KHD

Komb.-Nr. 0 401 876 325

company engine

BA 6 M 816

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067 All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestróke

estoil-ISO 4113

2,0-2,1 (1,95-2,15)

mm (from BDC)

RW = 9.0-12.0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	cm ¹ /100 strokes	mm S
750	15,0+0,1	35,8-36,1 35,5-36,5)	0,6(1,0)			
300	5,6-5,8	2,0-2,6	1,0(1,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed		Interm	ediate rat	ed speed	(4)	Lowe	er rated speed	(3) 10	rque control
Degree of deflection of control	travel	Control rod travel mm rev/min				Control- lever deflection		Control rod		Control rod travel
lever 1	2	3	4	5	6	in degrees	rev/min 8	9	rev/min	mm 11
loose	800	0,3-0,7	-	-	-	ca. 24	300	5,7	750	15,0-15,1
	X =	4,0					300-34	5,6-5,8 0=2,0	280 450	16,3-16,9 15,0-15,1
ca. 53	14,0 4,0 980	790-800 820-850 0,3-1,4				·	300-3	00=2,0	430	13,0-13,1

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	6 Rotational- speed limitat		uel delivery naracteristics	Starting I	fuel delivery 5	(4a) Idi	e stop
rev/min	cm/1000 strokes	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min	Control rod travel mm
	specifications quest.	790-800*	•	-	-	-	-	-

Checking values in brackets

3.86

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^{* 1} mm less control rod travel than gol 2

WPP 001/4 KHD 30,4 m 3

1. Edition

PE 12 P 130 A 920 RS 486 Komb.-Nr. 0 401 870 083

RSUV 300-1000 POA 348

supersede ~

company KHD

engine BA 12 M 816

1-10-5-7-2-11-6-8-3-12-4-9 je $30^{\circ}2,5^{\circ}$ ($^{\pm}0,75^{\circ}$) Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067 All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,0-2,1
Port closing at prestroke (1,95-2,15) mm

Testoil-ISO 4113

mm (from BDC)

RW = 9.0-12.0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ¹ /100 strokes	cm ¹ / 100 strokes	mm 2	cm ¹ /100 strokes	mm
750	15,0+0,1	35,8-36,1 (35,5-36,5)	0,6(1,0)			
300	5,6-5,8	2,0-2,6 (1,7-2,9)	1,0(1,4)			
			1			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	er rated speed		Interme	rmediate rated speed 4 Lower rated spe			rated speed	(3) 10	rque control	
Degree of deflection of control	travel mm	Control rod travel mm rev/min				Control- lever deflection	rev/min	Control rod travel	rev/min	Control rod travel mm
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 22	300	5,2	1000	15,0-15,1
	X =	2,0					300	5,6-5,8	280	16,2-16,8
2a . 67	14,0 4,0 1230	1040-1050 1070-1100 0,3-1,7					325-38	5=2,0	450	15,0-15,1

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp 40°C (104°F)	6 Rotational- speed limitat		uel delivery naracteristics	Starting	fuel delivery 5	4a Idle stop		
rev/min	cm ³ /1000 strokes 2	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm	
	specifications quest.	1040-1050*	-	-	-	~	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

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WPP 001/4 KHD 40,5 g 6

1. Edition

PE 8 P 130 A 920/5 RS 489 RSUV 300-750 POA 350-1

1-6 - 4- 5 - 8 - 3 - 2 - 7

0-75-90-120-210-225-315-345° ±0,5° (±0,75°)

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(1,95-2,15)

mm (from BDC)

; RW = 9,0-12,0 mm

Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (forque-control valve)
mm (2)	cm ¹ /100 strokes	cm ³ / 100 strokes	mm	cm1/100 strokes	mm
2	3	4	2	3	6
15,0+0,1	35,8-36,1 (35,5-36,5)	0,6 (1,0)			
5,6-5,8	2,0-2,6 (1,7-2,9)	1,0 (1,4)			
			<u> </u>		
	mm 2 15,0+0,1	mm 2 cm ^{3/100} strokes 3 35,8-36,1 (35,5-36,5)	travel mm 2 cm ³ /100 strokes 3 15,0+0,1 35,8-36,1 (35,5-36,5) 0,6 (1,0)	travel mm 2 cm³/100 strokes 15,0+0,1 35,8-36,1 (35,5-36,5) 0,6 (1,0)	travel mm 2 cm ¹ /100 strokes 3 cm ² /100 strokes 4 cm ² /100 strokes 2 cm ² /100 strokes 3 cm ² /100 strokes 2 cm ² /100 strokes 3 cm ² /100 strokes 4 cm ² /100 strokes 2 cm ² /100 strokes

Adjust the fuel delivery from each outlet according to the values in $\ \square$

B. Governor Settings

	er rated speed	d rev/min I Control rod	Intermediate rated speed 4				Lower	rated speed	3 Torque control		
Degree of deflection of control	travel mm	travel mm rev/min				Control- lever deflection	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11	
loose	800	0,3-1,0	-	-	-	ca. 24	300	5,2	750	15,0-15,1	
	x = 4	1,0					300	5,6-5,8	280 450	16,2-16,8 15,0-15,1	
ca.53	14,0	790-800		•			320-3	80 = 2,0	430	15,0-15,1	
2 a	4,0 980	830-860 0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

6	ull-load stop emp 40°C (104°F)	Rotational- speed limitat	33 F.	uel delivery naracteristics	Starting t	fuel delivery 5	(4a) Idi	e stop
	cm ¹ /1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm
on re	0,7 bar specifications quest. operates in m.	790-800 *	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

4.86

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WPP 001/4 KHD 40,5 h

1. Edition

PE 8 P 130 A 920/5 RS 489

RS 250/1000 P 1 A 422 R

supersedes KHD

1-6 - 4-5 - 8 - 3 - 2 - 7 0-75-90-120-210-225-315-345 ° ±0,5° (± 0,75°)

company BA 16 M 816

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067 All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Komb.-Nr. 0 401 878 134

A. Fuel Injection Pump Settings 2,0-2,1

Port closing at prestroke

(1,95-2,15)

mm (from BDC)

; RW = 9,0-12,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm 1/100 strokes	cm ¹ / 100 strokes 4	mm 2	cm v100 strokes	mm 6
750	15,0+0,1	35,8-36,1 (35,5-36,5)	0,6 (1,0)			
250	5,8-6,0	2,0-2,6 (1,7-2,9)	1,0 (1,4)			
-						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	er rated spee Control rod travel mm	d rev/min Control rod travel mm rev/min	Interm	ediate rat	ed speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	rev/min	rque control Control rod travel mm
loose	800 x = 5	0,3-0,7	-	-	-	FHca.24	250 250	5,9 5,8-6,0	1000 420	15,0-15,1 16,2-16,8
VHca.58 FHmax.	14,0 4,0 1270	1040-1050 1105-1135 0,3-1,4						60 = 2,0	550	15,0-15,1

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp. 40°C (104°F)	Rotational- speed limitat		uel delivery naracteristics	Starting fuel delivery 5		(4a) Id	e stop
rev/min	cm ³ /1000 strokes	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min	Control rod travel mm
on re	specifications quest. operates in m.	1040-1050*	-	-	•	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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WPP 001/4 CAT 7,0 c

1. Edition

<u>En</u>

PES 4 P 80 A 720 LS 853 RQV 350/840-900 PA 726-1

Komb.-Nr. 9 400 087 349

supersedes _

company: Caterpillar

engine 3304 T

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	(1.60-1.80)	mm (from BDC)	RW	= 9,0-12,0 m	ım
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokës	mm	cm ³ /100 strokes	mm
-	2	3	4	2	3	6
880	14,0+0,1	19,0-19,1	0,25(0,4)	<u> </u>	1	
350	5,9-6,1	0,9-1,4	0,2(0,35)			
	•				ĺ	
		1	1		I .	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated :	speed		Intermediate	rated sp	eed	Lower rated	speed		Stiding	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm 2	mm .	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deffection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min	1
max. ca. 66		15,2-17 910-920 940-970 0 - 1,0	-	• •	-	ca. 11	350 500	2,4-3,6	500 - 750 850	0,5-1,5 2,4-2,6 4,0-4,5 8,6

Torque control travel a = - mn

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed (2b) limitation intermediate speed			Starting Idle switching	• •	Torque- travel	control 5
rev/min	cm³/1000 strokes .	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
880	190,0-191,0 (188,5-192,5)	910-920 *	500	181,0-183,0 (179,0-185,0		235,0-255,0 = 17,6-18,6 mm RW		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.86

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 SCA 11,0 r 7. Edition

PE 6 P 110 A 720 RS 3040 Komb.-Nr. 0 401 846 710

RQV 250-1100 PA 379 R

superandes 3.84

company: Scania DS 1101

See page 2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

mm (from BDC)

; RW = 9,0-12,0 mm

Rotational speed	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
600	2	3	4	2	3	6
600	13,0+0,1	16,1-16,3	0,6(0,8)	ļ		$\frac{1}{3,3} \stackrel{+}{=} 0,1$
225	4,4-4,6	1,7-2,1	0,2(0,4)			(3,0-3,5)
		,				

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated :	speed			Intermediate rated speed			Lower rated	speed	Sliding	Sliding sleeve travel	
Degree of deflection of control lever	rodtravel	Control rod travel mm rev/min 3	(a) (28)	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of contro! lever 7	rev/min 8	Control rod travel mm 3 9		mm 11
max. ca. 64	12,0	15,2-17 1140-11! 1250-128 0 - 1	50	-	•	-	ca. 10	225	min.5,9 4,4-4,6 370 = 2,0	200 500 800 1100	1,0-1,2 3,8-4,0 5,4-5,6 8,5

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

	d atop np. 40°C (104°F) 2	Rotational-speed 2b limitation intermediate speed			[idle	fuel delivery 6	Torque- travel	Control od
rev/min	cm³/1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
LDA 600	0,9 bar 161,0-163,0 (159,0-165,0)	1140-1150*	LDA 1100 LDA 500	0,9 bar 153,5-158,5 151,0-161,0) 0 bar 128,0-132,0 126,0-134,0)	100	240,0-290,0 = 20,0-21,0 mm RW	•	•

Checking values in brackets

1 mm less control rod travel than col. 2

4.86

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Testain =

500 rev/min decreasing pressure – in bar gauge pressure

SCA 11,0 r -2-

Pump/governor	Setting	Measurement	diminution Control rod travel-difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 PRS 3040 + RQV PA 379R	0,90	0 0,37 0,25	13,0 - 13,1 11,7 - 11,8 12,7 - 12,8 11,8 - 12,0

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 29.8.1983
- Start of fuel delivery-engine: 20° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

Testoil-ISO 4113

Test-Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SAU 12,0 d 2. Edition

En

PES 6 P 120 A 420 LS 3049 RQ 300/1000 PA 423 DR

1 - 4 - 2 - 6 - 3 - 5 je 60° $^{\pm}0.5^{\circ}$ ($^{\pm}0.75^{\circ}$) Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067 supersedes 10.80 company: Saurer engine: D 4 KT

225 kW

Komb.-Nr. 0 402 046 716

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3,15-3,35)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring provensioning (torque-control valve) mm 6
1000	10.7+0	1 20.0-20.4	0,5(0,8)			
300	4,4-4,6	1,9-2,5	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

on flyweight assembly dimension a =

Checkin PRG che	g of slider ick Control rod	Full-load Setting p	oint	Test spe	cifications (4)	ldle sper Setting p	point		cifications (5)	Torque	(3)
rev/min	travel	rev/min 3	Control rod travel mm	Control red travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	travel mm	rev/min	travel
700	15,6-16,4	700	16,0		1045-1060 1090-1120 0-1,0	300	4,5	100 300 400-	min.5,9 4,4-4,6 140=2,0	700 800	10,7-10,8 11,8-11,9 11,6-11,8 11,0-11,3
Torque-c	outrol fravel	<u> </u>	0,7	L			10	45-10	50 min		1 mm less contro

Speed regulation: At

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting (fuel delivery ed 6
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/~1000 strokes 5	rev/min 6	rod travel cm ³ /1000 strokes://mm 7
LDA 1000	1,2 bar 200,0-204,0 (197,0-207,0)	-	LDA 700 LDA 400	1,2 bar 215,0-219,0 (212,0-222,0) 0 bar 102,0-106,0 (99,0-109,0)	100	215,0-235,0 =13,5-13,7 mm RW

Checking values in brackets

.7.83

rod travel

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SAU 12,0 d -2

Testatn =

500

rev/min decreasing pressure – in bar gauge pressure

300			
Pump/governor	Setting	Measurement	diminution Control rod travel-difference
	Gauge pressure = bar	Gauge pressure = bar	mm (t) .
PES 6 PLS3049 +RQPA 423 DR	1,2	0 0,45 0,25	11,8-11,9 8,4-8,5 10,9-11,0 9,2-9,3

Notes:

(1) when n =

rev/min and gauge pressure =

WPP 001/4 VOL 12,0 f

2. Edition

PE 6 P 120 A 320 RS 3071

RQV 250-1100 PA 371/2 R

supersedes 8.80

Komb.-Nr. 0 401 846 725

company: VOIVO TD 120 G

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings
2,6-2,7
Port closing at prestroke (2,55-2,75) mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
700	11,4+0,1	20,5-20,8	0,5(0,9)			
250	5,6-5,7	2,2-2,6	0,5(0,7)			2,5 ⁺ 0,1 (2,2-2,9) **

Adjust the fuel delivery from each outlet according to the values in In the case of greater dispersion alter the delivery-valve spring pre-tension

** accordingly. B. Governor Settings

Upper rated s	peed		Intermedia	te rated sp	eed	Lower rated	speed		Cliding	doore trough
deflection of control	rev/min Control rod travel mm	mm C	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel		ileeve travel
1	2	3	4	5	6	7	8	mm (3) 9	rev/min 10	mm 11
max.	1100	15,2-17,	8 -	٠ -	-	ca. 12	100 250	min.7,1 5,6-5,7		0,7-0,9
ca. 46	4,0	1160-117 1235-126						5,0-5,7		2,9-3,2 5,0-5,3 7,7
	1350	0 - 1,0			1	2 75- 400	P			
				<u>L</u>		3 9				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		intermediate speed	high idle s	very characteristics 5a	Starting Idle switchli		Torque-	Control roc
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 700	0,9 bar 205,0-208,0 (202,0-211,0)	1160-1170 *	LDA 700	0 bar 157,0-161,0 (154,0-164,0		230,0-270,0 = 20,0-21,0 mm RW		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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rev/min decreasing pressure - in bar gauge pressure VOL 12,0 f Test at n = 500 Control rod travel Pump/governor Setting Measurement difference Gauge pressure = Gauge pressure = (1) 11,0-11,1 11,4-11,5 9,0-9,1 9,9-10,1 PE 6 P..RS 3071 +RQV..PA371/2R 0,57 0,90 0,33

Notes:

(1) when n =

rev/min and gauge pressure =

WPP 001/4 VOL 12,0 f 6

1. Edition

PE 6 P 120 A 320 RS 3071-E RQV 300

RQV 300-1050 PA 371-1

supersedescompany: VOI VO-BM

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

engine: TD 1206 BM

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Komb.-Nr. 0 401 846 780 E

Port closing at pres	stroke (2.55-2.75)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference cm³/	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
700	11,8+0,1	20,0-20,3	0,5 (0,9)			2,5 [±] 0,1
300	5,3-5,5	1,7-2,1	0,5 (0,7)			(2,2-2,9)
				L	l	1

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	Stidings	leeve travel
deflection of control	rev/min Control cod travel mm 2	Control rod (1a) travel mm (2a) 3	Degree of deffection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	Control rod travel rev/min mm 3 8 9	rev/min	mm
max.	1140	15,2-17,8	-	٠ -	_	ca. 14	100 min.6,8 300 5,3-5,5		1,1-1,3 3,1-3,5
ca. 43	10,8 4,0 1325	1105-1115 1190-1220 0 - 1,0					380-440 = 2,0		5,0-5,3 7,5
						3a)			

Torque control travel a = - n

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 2b limitation intermediate speed	Fuel deliv	very characteristics 5a speed 5b	Starting Idle switchin		Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 4a	rev/min 4	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
LDA 700	1,2 bar 200,0-203,0 (197,0-206,0	1105-1115 *)	LDA 700	0 bar 152,0-155,0 (149,0-158,0		-	-	•

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.86

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VOL 12,0 f 6 -2-

Test at n =

rev/m/n decreasing pressure - in bar gauge pressure

500 Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	nim (1)
PE 6PRS 3071-E +RQVPA 371-1	1,20	0 0,91 0,40	11,8-11,9 9,4-9,5 11,6-11,7 9,6-9,8

Notes.

(1) when n =

rev/min and gauge pressure =

40

WPP 001/4 MB 11,4 i 3 2. Edition

Festoil-ISO 4113

PES 6 P 120 A 820 LS 3077 RQ 300/1100 PA 603 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersede 8.81
Daimler-Benz
company
OM 407 HA
engine 206 kW (280 PS)

Komb.-Nr. 0 402 046 727

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	(3,95-4,15)	mm (from BDC)	mm (from BDC)						
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)				
1	2	3	4	2	3	6				
1100	11.7+0.	18,4 - 18,6	0,5(0,9)							
300	5,0-5,2	1,4- 2,0	0,8(1,2)							
			1							

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider	Full-load speed regulation			Idle speed regulation				Torque control		
rev/min	Control rod travel mm 2	Setting por rev/min 3	Control rod travel mm	Test spe rev/min 5	cifications Control rod travel mm 6		Control rod travel rnm 8		cifications Control rod travel mm 10	rev/min	Control rod travel mm 12
650 VH =	19,1-20,8 max. 46°	650	20,0		1145-1160 1190-1220 0 - 1	300	5,1	300	min. 6,5 5,0 -5,2 395 = 2,0	950	11,7 + 0,1 12,0 + 0,2 12,3 + 0,1

Torque control travel on flyweight assembly dimension a =

mm

Speed regulation: At 145-1160 min-1

Cv1. 6

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod slop	Fuel deliv	very characteristics	Starting (luel delivery
rev/min 1	cm³/~1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm ³ /1 000 strokes 7
LDA 1100	0,75 bar 184,0 - 186,0 (181,0 - 189,0)		LDA 600 LDA 500	0,75 bar 187,0 - 193,0 (184,0 -196,0) 0 bar 145,0 - 147,0 (142,0 - 150,0)	100	175,0 - 195,0 (171,0-199,0)

Checking values in brackets

7.83

Test at n =

500

rev/min decreasing pressure ~ in bar gauge pressure

MB 11,4 i 3

Pump/governor	Setting	Measurement	Control rod travet-
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
LS 3077 mit	0,75		12,3 - 12,4
PA 603		0,53	11,7 - 11,8
		0,42	10,8 - 11,0
		0	10,3 - 10,4

Notes:

(1) when n =

rev/min and gauge pressure =

estoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 ROL 12,2 a 3. Edition

En

PE 6 P 130 A 320 RS 3078 RQ 750 PA 584

1 - 4 - 2 - 6 - 3 - 5 je 60° ±0,5° (±0,75°)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 8.81
company Rolls Royce C 6 . 200 G

Komb.-Nr. 0 401 846 744

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,35-3,55)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (forque-control valve) mm 6
700	11,7+0,1	26,7 - 27,1	0,5(0,9)			
300	4,9-5,0	3,8 - 4,4	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider	Full-load Setting p			o.f. a.a.t	Idle spe				Torque	control
rev/min	Control rod travel mm 2	rev/min	Control rod travel rnrn	rev/min 5	cifications Control rod travel mm 6	Setting prev/min	Control rod travel	1	cifications Control rod travel mm 10	rev/min	Control rod travel mm 12
-	-	-	-	10,7 4,0 850	•	-	-	-	-	-	•

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	lelivery on control lever pp 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics	Starting	Starting fuel delivery		
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min	cm ³ /1600strokes		
700	267,0 - 271,0 (264,0 - 274,0)		-	-	100	290,0-340,0		

Checking values in brackets

8.83

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WPP 001/4 RVI 12,0 b 2. Edition

estoil-ISO 4113

PES 6 P 120 A 320 RS 3082 RQ 750 PA 597

Komb.-Nr. O 402 046 723

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 8.81

RVI

MIDS (R) 063540

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3.45-3.65) mm (from BDC)

		<u>3,45-3,65)</u>				
Rotational speed	Control rod travel	Fuel delivery	Difference cm³/	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm*/100 strokes	mm
1	2	3	4	2	3	6
700	14,8+0,	25,1 - 25,3	0,5(0,9)			
250	6,5-6,7	1,50 - 2,10	0,8(1,2)			
	1	<u> </u>	l	I .	1	l

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	Checking of slider Full-load speed Setting point			~	cifications	Idle speed regulation Setting point Test specifications				Torque control		
	Control rod travel mm 2	rev/min	Control rod travel rmm		Control rod travel mm 6		Control rod travel mm 8		Control rod travel	rev/min	Control rod travel mm 12	
-	•	-	-	13,8 4,0 900	750-755 787-800 0 - 1,0	-	-	-	-	-	-	

Torque-control travel on flyweight assembly dimension a =

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp 40°C (104°F)	Control rod stop	Fuel deliv	very characteristics	Starting	luel delivery
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min	cm ³ /1 000 strokes 7
700	251, 0 - 253, 0 (248, 0 - 256, 0)	-	-	-	-	-

Checking values in brackets

8.83

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WPP 001/4 SSC 19,0 b

2. Edition

PE 6 P 110 A 320 LS 3084

RQV 300-750 PA 614

supersedes 4.85 SSCM

Komb.-Nr. 0 401 846 750

6 L 150 316 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	12.75 <u>-2.95</u>)	mm (from BDC)	RW	= 9,0 - 12,0 m	n
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,0+0,1	24,5-24,8	0,4(0,75)			
300	4,5-4,7	1,8-2,3	0,45(0,75			
	_					

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	i i	lossus o	1 1 1			Lower rated	speed	Sliding sleeve travel		
deflection of control		Control rod (1a) travel mm rev/min (2a)	of control	rev/min	Control rod travel mr (4)	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min	mm (1)
1	2	3	4	5	<u> </u>	7	8	9	10	11
max.	780	15,2-17,8	-	· -	-	ca. 11		min.6,1 4,5-4,7	275 600	1,3-1,5
ca. 66		790-800 840-870					300	14,0-4,7		5,3-5,8 7,8-8,3
	950	0 - 1,0				310-410		•		
			<u> </u>			3 a		,		

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		limitation intermediate speed	(3)		Starting Idle switchin		Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1600 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
750	245,0-248,0 (242,5-250,5)		-	•	300	18,0-23,0 (15,5-25,5)	=	-

Chucking values in brackets

* 1 mm less control rod travel than cel. 2 4.86

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WPP 001/4 PEN 12,0 d 2. Edition

En

PE 6 P 120 A 320 RS 3088 Z RSV 200-900 P4/421 R Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 12.82 company Volvo-Penta engine TMD 120 B Komb.-Nr. 0 401 876 725

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,6 - 2,7 (2,55-2,75) mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre tensioning (torque-control valve)
rev/min	mm 2	cm/100 strokes 3	cm ³ / 100 strokes 4	տտ 2	cm·/100 strokes	mm 6
700	11,7+0,1	19,3-19,7	0,5 (0,9)			2,5±0,1 (2,2-2,9)
250	3,6-3,8	1,6-2,0	0,5 (0,8)			(2,2-2,9)
				·		•

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	er rated speed		Interme	ediate rati	ed speed	(4)	Lowe	rated speed	(3) 10	rque control
Degree of deflection of control lever 1	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800 X =	0,3-1,7 4,0	•	•	-	ca.22	250	3,2	-	-
ca.53	10,7 4,0 1130	940- 950 970-1000 0,3-1,7					250 300-3	3,6-3,8 860 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

6	ill-load stop	6 Rotational- speed limitat	11.361	Fuel delivery characteristics		fuel delivery 5	4a Idle stop	
Test oil te rev/min 1	emp 40°C (104°F) cm·/1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control root travel mm
700	193,0-197,0 (191,0-199,0)	940-950*	900	193,0- 197,0 (190,0-200,0)	100	390-440 = 20,0- 21,0 mmRW	250	3,7

Checking values in brackets

* 1 mm loss control rod travel than col. 2

8.83

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WPP 001/4 SSC 38,1 a
2. Edition

En

PE 12 P 110 A 520/6 LS 3090-1 RQV 300-750 PA 614 supersedes 12.82 Komb.-Nr. O 401 830 700 company. SSCM 1 - 8 - 5- 10 - 3 - 7 - 6 - 11 - 2 - 9 - 4 - 12 engine: POYAUD V 12-150 0 -37,5- 60-97,5-120-157,5-180-217,5-240-277,5-300-337,5° $\stackrel{+}{=}$ 0,5° ($\stackrel{+}{=}$ 0,75°)

530 kW (720 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2.8 - 2.9

Rotational speed	Control rod travel	(2,75-2,95) Fuel delivery	Difference	Control rod travel	= 9,0 - 12,0 Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	cm³/ 100 strokes 4	mm ⋧	cm ³ /100 strokes	mm 6
750	13,3+0,1	24,6-24,9	0,4 (0,7	5)		
300	4,7-4,9	1,8-2,4	0,45(0,7	5)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed		Intermediate	rated sp	eed	Lower rated	speed			
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min (2a)	Degree of deflection of control lever	rev/min	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	leeve travei
1	2	3	4	5	6	7	8	9	10	11
max.	780	15,2-17,8	-	٠	-	ca.10		min.6,3	300	
ca.66	12,3 4,0 1000	790-800 835-865 0-1,0						4,7-4,9 85=2,0	600 750	5,3-5,8 8,1
						3a)				

Torque control travel a =

mr

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roa Test oil ten		intermediate speed	Fuel deliv	very characteristics 5a	Starting Idle switching		Torque-	Control od
rev/min	cm ³ /1000 strokes	rev/min 40	rev/mia 4	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
750	246,0-249,0 (243, 5 -25 1, 5	790-800*)	-	-	300	18,0-24,0 (15,5-26,5	<u>-</u>)	-

Checking values in brackets

* 1 mm less control rod travel than col 2

4.86

BOSCH

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40

WPP 001/4 MB 11,4 q

2. Edition

En

PES 6 P 120 A 820 LS 3112

RSV 350-1100 P0/500

Values only apply to test nozzle-and-holder assembly compared to the compared

supersedes 1.83

company Daimler-Benz OM407A

206 kW (280 PS)

Komb.-Nr. 0 402 076 718

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

4,0 - 4,1 (3,95-4,15)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ¹ /100 strokes	cm ¹ / 100 strokes 4	mm 2	cm1/100 strokes	mm 6
1100	11,5+0,1	17,5-17,7	0,5 (0,9)			
350 600 5 <u>@</u> 0	4,7-4,9	1,6-2,2 C, Sp. 4 u. 5	0,8 (1,2) 0,75(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	rated speed	rev/min	Interme	diate rated	speed	(4)	Lower	rated speed	(3) To	rque control
Degree of deflection	Control rod travel	Control rod travel				Control- lever		Control rod travel		Control rod travel
of control lever	mm	mm rev/min				deflection in degrees	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 25	350	4,8	-	-
	X =	3,25					420-460	= 2.0		
ca. 48	10,5	1135-1145						,0	•	
(2a)	4,0 1300	1215-1245 0,3-1,7								
	1300	0,3-1,7				<u> </u>	l		1	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill load stop	6 Rotational- speed limitat	(3a) Fr	uel delivery paracteristics	Starting fuel delivery 5 4a Idle stop				
rev/min	cm ¹ /1000 strokes	Note changed to) rev/min 3	rev/min 4	cm ^{1/1} 000 strokes 5	rev/min	cm ¹ /1000 strokes	rev/min 8	Control rod travel mm	
LDA 1100	0,7 bar 175,0-177,0 (172,0-180,0)	1135-1145*	LDA 600 LDA 500	0,7 bar 177,0-183,0 (174,0-186,0) 0 bar 143,0-145,0 (140,0-148,0)	100	150,0-170, 146,0-174		-	

Checking values in brackets

* 1 mm less control rod travel than col 2

9.83

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-2-

Testatn =

500

rev/min decreasing pressure – in bar gauge pressure

MB 11.4 a

300							MВ	11,4
Pump/governor	Setting		Measurement		Control rod trav	diminution et- difference	•	
	Gauge pressure =	bar	Gauge pressure =	bar	mm (1)			
PES6PLS3112	0,70				11,8	11,9		
+ RSVPO/500			0,40		10,7 -	10,9		
			0,50		11,6 -	11,7		
			0		10,5 -	10,6		

Notes

(1) when n =

rev/min and gauge pressure =

En

PES 6 P 110 A 720 RS 3149 RQV 350-1300 PA 772 supersedes 10.85 Komb.-Nr. 9 400 087 334 company: Ford Values only apply to test nozzle-and-holder assembly engine 6,6 l TC 1 688 901 017 and fuel-injection_test tubing 1 680 750 008

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

00 strokes mm
6

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated :	speed			Intermediate	rated sp	eed	Lower rated	speed		Cliding	lanua tanual
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	(18) (28)	Degree of deflection of control lever	rev/min 5	Control Fod travel mm 4	Degree of deflection of control lever	rev/min 8	Control rod travel mm 3	rev/min	mm 11
	1350 12,1 4,0 1650	15,2-17, 1360-137 1505-153 0 - 1,0	70 35	•		-	ca. 13 370-440 ③a	350 600-6	min. 9,0 7,2-7,4 560 = 2,0	500 800	0,6-1,3 2,3-2,7 4,0-4,3 5,0-5,3 7,3

Torque control travel a = __ n

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed (2b) limitation intermediate speed	Fuel delin	very characteristics 5a speed 5b	Starting Idle switchin		Torque- travel	Control roc
rev/min	cm³/1000 strokes	rev/min 48	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
LDA 1300	1,0 bar 105,0-107,0 (102,0-110,0)	1360-1370 *	LDA 600 LDA 500	1,0 bar 103,5-107,5 (91,5-109,5) 0 bar 76,5-78,5 (73,5-81,5)	100	100,0-120,0 (96,0-124,0 =20,0-21,0 mm RW 16,0-20,0 (13,5-22,5)		-

Checking values in bracksts

* 1 mm less control rod travel than col. 2 4 . 86

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Test at n =

rev/min decreasing pressure ~ in bar gauge pressure increasing

FOR 6,6 c

- 2 -

500	rev/min increasing pressure - in	par gauge pressure	
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 PRS 3149 + RQVPA 772	1,0	0 0,70 0,50	13,1-13,2 11,6-11,7 12,7-12,8 12,0-12,2

Notes

(1) when n =

rev/min and gauge pressure =

 \odot

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 KHD 16,0 d 1

1. Edition

PE 10 P 110 A 920/5 LS 3164 RQV 300-900 PA 790-1 Komb.-Nr. 0 401 849 724

1-10- 9- 4- 3 - 6 - 5 - 8 - 7 - 2
0-27-72-99-144-171-216-243-288-315° ±0,5° (±0,75°)

supersedes - company: KHD

gine: BF 10 L 513 218 kW/1800 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	(2.75-2.95)	mm (from BDC)			
Rotational speed	Control rad travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
900	11,4+0,1	11,7-11,9	0,4 (0,75			
300	6,4-6,6	1,2-1,8	0,45 (0,7			
	L	L		<u> </u>	<u> </u>	<u> </u>

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed		Intermediate	e rated sp	eed	Lower rated	speed		Clidian	1
deflection	rev/min Control rod travel mm 2	Control rod (1a travel mm (28)	of control	rev/min 5	Control rad travel mm 4	Degree of deflection of control lever 7	rev/min	Control rod travel mm 3	rev/min	mm
max.	920	15,2-17,	B -	٠ -	-	ca. 18		min. 7,9		1,1-1,2
ca. 55	4,0	940-950 985-1015					300	16,4-6,6		3,1-3,3 5,1-5,3 8,1
	1100	0 - 1,0				320-450 ③		;		

Torque control travel a = 0,40 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed (2b) limitation intermediate speed	Fuel deli high idle s	rery characteristics (5e)	Starting Idle switchir	,	Torque- travel	control 5
rev/min	cm ³ /1000 strokes .	rev/min 4a	nim\ve?	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	
900	117,0-119,0 (114,0-122,0)		-	•	100	135,0-165,0	650 900 800	9 11,9+0, 11,4+0, 11,6+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

4 86

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①

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MAN 11,9 d

1. Edition

En

PES 6 P 120 A 720 LS 3167

RQV 300-1000 PA 667-2

supersedes

Komb.-Nr. 0 402 046 769

company: MAN

Komb.-W. 0 402 040 703

engine: D 2866 LE

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

300 kW MAN-Nr.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	3,8-3,9 3.75-3.95)	mm (from BDC)	Cyl.	6	
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm;
1100	12,6+0,1	23,4-23,6	0,5 (0,9			
300	5,9-6,1	1,7-2,3	0,8 (1,2			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed			Intermediate	rated sp	eed	Lower rated	speed		Call diam	
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod travel nim rev/min 3	(1a) (2a)	Degree of deffection of control lever 4	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min	Control rod travel mm 3	rev/min	mm
max.	1175	15,2-17,	8	~		-	ca. 17		min. 7,5		1,2-1,4
ca. 53	11,6 4,0 1400	1140-11 1245-12 0 - 1	275						5,9-6,1		3,3-3,5 5,9-6,2 7,7
	1400	0 - 1,	, 0				330-445				
							3 a)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roe Test oil ten		intermediate speed	high idle s	very characteristics Sa peed Sb	Starting Idle switchli		Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 4a)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1100	234,0-236,0 (231,0-239,0		-	-	100	210,0-230,0 (206,0-234,0		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.86

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Testoil-ISO 4113

Test-Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 FIA 17,2 b 1. Edition

PE 8 P 120 A 920/5 LS 3804 RQ 300/950 PA 474 1 - 8 - 4 - 3 - 6 - 5 - 7 - 2 je 45 + 0,5 (+0,75°) supersedes -company: Fiat Values only apply to test nozzle-and-holder assembly 8280.22.007 1 688 901 019 and fuel-injection test tubing 1 680 750 067 280 kW Komb.-Nr. 0 401 848 726

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3.45 - 3.65)mm (from BDC)

Rotational speed rev/min	Control rod travel ° mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
950	11,1+0,1	18,5-18,7	0,5(0,9)			
300	4,9-5,1	1,3-1,9	0,8(1,2)			
	:					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che rev/min 1	Control rod		•	•	rev/min	Idle spec Setting p rev/min 7	•		cifications 5 Control rod travel mm	Torque o	Control rod (3)
600 V H	19,2-20,8 = max 46	600	20,0		995-1010 1030-1060 0 - 1,0	300	5,0	100 300 350-	min.7,5 4,9-5,1 390= 2,0	950 600	11,1-11,2 11,1-11,3
	ontrol travel ght assembly dimen	 sion a =	0	mm	Spe	ed regula	tion: At	995-1	010 min 1	L	1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics (3b)	Starting f	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes	rev/min 6	Contrai rad travel cm ³ /1000 strokes:// mm 7
LDA 950	0,7 bar 185,0-187,0 (182,0-190,0)	7	LDA 950	0 bar 138,0-140,0 (135,0-143,0)	100	210,0-230,0 (206,0-234,0)

Checking values in brackets

9.83

Test at n =

rev/min decreasing pressure - in bar gauge pressure

FIA 17,2 b

300			
Pump/governor	Setting	Measurement	diminution Control rad travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 8 P LS 3804	0,70		11,1 - 11,2
+ RQPA 474		0	8,3 - 8,4
		0,36	10,4 - 10,5
		0,29	8,8 - 9,2
	! !		

(1) when n =

rev/min and gauge pressure =

Testcil-ISO 4113

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 FIA 17,2 b 1
1. Edition

PE 8 P 120 A 920/5 LS 3804 RQV 300-950 PA 475 R 1-8-4-3-6-5-7-2 je $45^{\circ}+0.5^{\circ}$ (+ 0.75°) Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes Fiat company 8280.22

280 kW

Komb.-Nr. 0 401 848 730

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,45-3,65) mm (from BDC)

		3,45-3,05)	······ (········ B50)			
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strekss	Spring pre-tensioning (torque-control valve) mm
950	11,1+0,1	18,5-18,7	0,5(0,9)			
300	4,9-5,1	1,3-1,9	0,8(1,2)			-1
950	8,3-8,4	C,Sp. 4 u. 5	(1,2)			
					İ	
				<u> </u>		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated a	peed			Intermediate	rated sp	eed	Lower rated	speed			
deflection	Control rod travel	Control rod travel mm rev/min 3	9	Degree of deflection of control lever	l_	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm
max. ca. 64	950 10,1 4,0 1250	1075-11	00	•		-	ca. 11 300-390	100 300	min.7,5 5,9-6,1	250 480	1,0-1,3 3,7-4,2 5,6-5,9 7,7
							3 a				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed (2b) timitation intermediate speed	Fuel deli- high idle :	very characteristics 5a	Starting Idle awitchir		Torque- travel	control 5
rev/min 1	cm ³ /1000 strokes .	rev/mila 49 3	rev/min	cm ³ /1000 strokes	rev/miñ	cm ³ /1000 strokes	rev/min	travel mm
LDA 950	0,7 bar 185,0-187,0 (182,0-190,0		LDA 950	0 bar 138,0-140,0 (135,0-143,0		210,0-230,0 (206,0-234,0)	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.83

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Testatn =

rev/min decreasing pressure ~ in bar gauge pressure

essure ~ in bar gauge pressure

FIA 17,2 b 1

-2-

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 8 PLS 3804	0,70		11,1 - 11,2
+ RQVPA 475 R		0	8,3 - 8,4
		0,36	10,4 - 10,5
		0,29	8,8 - 9,2
	<u>.</u>		

Notes

(1) when n =

#av/min and gauge pressure =

40

WPP 001/4 MB 14,6h2 2. Edition

Er

PE 8 P 120 A 320 LS 3807 RQ 900 PA 310 R Kcmb.-Nr. 0 401 848 743 1-8-7-2-6-3-5-4 je 45° $\stackrel{+}{=}0,5$ ° ($\stackrel{+}{=}0,75$ °)

supersedes3.81

company: Daimler-Benz OM 422 A 229 kW

Values only apply to test nozzie-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

mar 1...georem case casting 1 000 100 001

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Port closing at prestroke (3.95-4.15) mm (from BDC)

cy1.8

Rotational speed	Control rod	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	enn.	cm / iou strokes	(com
1	2	3		2	3	6
850	12,0+0	1 17,9-18,1	0,5(0,9)			
300	4,8-5,	0 1,2- 2,0	0,8(1,2)			
				ł		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider ick	Full-load Setting p			cifications (4)	Idle spec	-		cifications (5)	Torque d	control (3)
rev/min	Control rod travel mm 2	rev/min 3	Control rod travel rmm 4	Control rad travel mm 5	rev/min 6	rev/min 7	Control rod travel		Control rod	rev/min	Control sod
-	<u>-</u>	•	-	11,0 4,0	Ī	-	-	-	-	-	-

Torque-control travel on flyweight assembly dimension a =

mm

900-905 min -1 Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting (uel delivery
rev/min	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min	Control red travel cm ³ /1000 strokes://mm
850	179,0 - 181,0 (176,0 - 184,0)	-	as a	-	100	160,0 - 180,0 (156,0 - 184,0)

Checking values in brackets

9.83

BOSCH

Testoil-ISO 4113

WFP 001/4 MB 14,6h

2. Edition

PE 8 P 120 A 320 LS 3807

RQ 1050 PA 310

supersedes 3.81

Komb.-Nr. 0 401 848 742

company: Daimler-Benz

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

Port closing at prestroke

OM 422 A engine:

Values only apply to test nozzle-and-holder assembly

228 kW (310 PS)

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(3.95-4.15)

mm (from BDC)

cy1.8

		1,30-4,10/			-	
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	11,3+0,1	17,3 - 17,5	0,5(0,9)			
300	4,8-5,0	1,2 - 2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider ck	<u>(1)</u>	Full-load : Setting po			cifications (4)	Idle speed regulation Setting point Test specifications (5)				Torque control (3)		
rev/min	Control rod travel mm 2	O	rev/min 3	Control red travel mm	Control red travel rnm 5	rev/min 6	rev/min 7	Control rod travel rmm 8		Control rod travel mm	rev/min 11	Control rod Control rod	
•	-		-	-	10,3 4,0	1050-1055 1090-1105		-	-	**	-	-	

Torque-control travel on flyweight assembly dimension a =

1050-1055 min -1 Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop (3a)	Fuel delive	ery characteristics	Starting f	uel delivery d Centros
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	contained com ³ /1000 strokes:// mm
1000	173,0 - 175,0 (170,0 - 178,0)	-	•	•	100	180,0 - 200,0 176,0 - 204,0)

Checking values in brackets

Testoil-150

WPP 001/4 MB 14,6h3 2. Edition

PE 8 P 120 A 320 LS 3807

RQ 750 PA 374 R

supersedes 10.82 Daimler-Benz

Komb.-Nr. 0 401 848 741

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^{\circ} \stackrel{+}{=} 0,5^{\circ} (\stackrel{+}{=} 0,75^{\circ})$

OM 422 A engine. 196 kW (266 PS)

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3.95-4.15)

mm (from BDC)

cy1.8; RW = 9.0 - 12.0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /¥00 strokes	cm³/ 100 strokes	mm	cm ³ /100 strokes	mm
-	2	3	4	2	3	6
700	12,1+0,1	18,4 - 18,6	0,5(0,9)			
300	4,8-5,0	1,2 - 2,0	0,8(1,2)			
				[
	l			L		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider ick	\bigcirc	1	ill-load speed regulation etting point Test specifications (2			Idle speed regulation Setting point Test specifications (5)				Torque control		
rev/min	Control rod travel mm 2	\odot	rev/min 3	Control rod travel mm 4	Control red travel rnm 5	rev/min 6		Control rod travel		Control rod travel	rev/min	Control rod (travel	
-	-		•	•	11,1 4,0	750-755 785-795	-	-	•	-	ı	-	

Torque-control travel on flyweight assembly dimension a =

750-755 min -1

1 mm less control

C. Settings for Fuel Injection Pump with Fitted Governor

	•	•			
lelivery on control lever mp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting (
cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	Control red travel cm ³ /1000 strokes:/ mm
184,0 - 186,0 (181,0 - 189,0)	•	-	-	100	180,0-200,0 (176,0-204,0)
ľ	control lever np. 40°C (104°F) cm³/-1000 strokes 2 184,0 - 186,0	control lever (2) (3a) cm³/-1000 strokes rev/min 3 184,0 - 186,0 -	control lever (2) (3a) (3a) (cm³/-1000 strokes rev/min 3 rev/min 4	control lever (2) (3a) (3b) (3b) (40°C (104°F) (2) (3a) (3b) (2) (3a) (3b) (2) (3a) (3b) (2) (3a) (3a) (3b) (3b) (3a) (3a) (3a) (3a) (3a) (3a) (3a) (3a	Control lever (2) (3a) (3b) Idle specimp 40°C (104°F) (2) (3a) (3b) Idle specimp 40°C (104°F) (3b) Idle specimp 40°C (104°F) (3c) (3c)

Checking values in brackets

Testoil-ISO 4113

Test-Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MB 14,6 g 1

5. Edition

PE 8 P 120 A 320 LS 3807 Komb.-Nr. 0 401 848 747 RQ 300/1150 PA 511-2

supersedes _83

company: Daimler-Benz

OM 422 LA engine:

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

276 kW (375 PS)

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067 All test specifications are valid for Bosch Fuel Injection Pump Test Banches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3.95-4.15)

mm (from BDC)

Cy1.8

Rotational speed	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)		
1	2	3	4	2	3	6		
900	11.6+0.	1 18.9 - 19.1	0,5(0,9)			_		
300	4,8-5,6	1,2 - 2,0	0,8(1,2)					
1150	-	C, Sp. 1u. 2	0,75					
600 500	-	C, Sp.4u. 5	0,75					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	()	Full-load : Setting po	pint	Test spe	cifications (4)	tdle spec Setting p	oint		cifications (5)	Torque o	(3
rev/min	Control rod travel mm 2	rev/min 3	Control rod travel rnm 4	Control rod travel rnm 5	rev/min 6	rev/min 7	Control red travel arim 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel
600 V H	19,1 -20 = max. 46	8 600	19,9	10,6 4,0	1195-1210 1250-1280	L	4,3	100 300 335-	min.6,0 4,2-4,4 375 =2,0	-	-

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1195 - 1210 min⁻¹ 1 mm tess control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever np. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics (3b)	Starting for	uel delivery d G
rev/min 1	cm ³ /~1000 strokes 2	rev/min 3	rev/min 4	cm ³ /~1000 strokes 5	rev/min 6	red travel cm ³ /1000 strokes:/ mm 7
LDA 900 LDA 1150	0,7 bar 189,0 - 191,0 (186,0 - 194,0) 0,7 bar 185,0-189,0 (182,0-192,0)	•	LDA 600 LDA 500	0,7 bar 182,0 - 186,0 (179,0 - 189,0) O bar 139,0-141,0 (136,0-144,0)	100	140,0 - 160,0 136,0-164,0)

Checking values in brackets

9.83

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D. Adjustment Test for Manifold Pressure Compensator

rev/min decreasing pressure – in bar gauge pressure MB 14,6 g1 Test at n = 500 Control rod travel-Pump/governor Measurement difference Gauge pressure = bar | Gauge pressure = bar mm (1) PE 8 P..LS 3807 0,44 11,1 - 11,3 + RQ..PA 511-2 11,6 - 11,7 0,70 10,1 - 10,20 0,34 10,3 - 10,4

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 MB 14,6 1 1 3. Edition

En

PE8P120A320LS3807 RQV 300-1150PA526-2
1-8-7-2-6-3-5-4 je 45° ± 0,5° (± 0,75°)
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 1.83
company: Daimler-Benz
OM 422 LA

V engine: 276 kW (375 PS) Komb.-Nr. O 401 848 748

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3.95-4.15) mm (from BDC)

	ئـــــــــــــــــــــــــــــــــــــ	0,30 1,107				
Rotational speed rev/min 1	Control rod trave) mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	11,6+0,1	18,9-19,1	0,5(0,9)			
300	4,8-5,0	1,2- 2,0	0,8(1,2)			=
1150	. ~	C,Sp. 1 u. 2	0,75	<u> </u>		
600 500	-	C, Sp.4 u. 5	0,75			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed	A	Intermediate	e rated sp	eed	Lower rated	speed			
Degree of deflection of control lever	rev/min Control rod travel mm 2		Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	Sliding s	mm
max.	1150	15,2-17,8	-		-	ca.10		min.6,0 4,2-4,4	250 550	1,0-1,2 3,4-3,7
ca.65		1190-1200 1230-1260 0- 1,0				320-465			850 1150	4,9-5,3 7,6
						3 8				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 2b imitation intermediate speed	Fuel deli high idle s	very characteristics 58 speed 5b	Starting Idle switchi		Torque- travel	control 5
rev/min 1	cm³/1000 strokes . 2	rev/min 40 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strakes 7	rev/min 8	travei mm
LDA 900 LDA 1150	0,7 bar 189,0-191,0 (186,0-194,0 0,7 bar 185,0-189,0 (182,0-192,0		LDA 600 LDA 500	0,7 bar 182,0-186,0 (179,0-189,0 0 bar 139,0-141,0 (136,0-144,0		140,0-160,0 (136,0-164,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.83

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - In bar gauge pressure

Pump/governor	Setting	Tata	
rompigovemoi	Setting	Measurement	diminution * Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PERPLS3807 + PA526-2	0,44	0,70 0 0,34	11,1-11,3 11,6-11,7 10,1-10,2 10,3-10,4

TREAT CONTRACT

्ड;whenn =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

MB 14,6 1 1

Testoil-ISO 41

WPP 001/4 MB 21,9 a 1 2. Edition

PE 12 P 120 A 320 LS 3819

RQ 900 PA 634

supersedes 3.83

1 - 5 - 9 - 8 - 3 - 4 - 11 - 10 - 2 - 6 - 7 - 12

Daimler-Benz company:

0 -15 -60 -75 -120-135-180-195-240-255-300-315° $\stackrel{+}{=}$ 0,5°($\stackrel{+}{=}$ 0,7 $\stackrel{-}{5}^{\circ}$)°

OM 424 A

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067 Komb.-Nr. All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

0 401 840 704

A. Fuel Injection Pump Settings

Port closing at presi	TOKE (4,0 - 4,1 3,95-4,15)	mm (from BDC)	·	Cyl. 12	
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
850	11 .8+0 .1	18.3 - 18.5	0,5 (0,8			
300	4,8-5,0	1,2-2,0	0,8 (1,2	}		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider ick	Full-load s			est specifications (4) Setting point Test specifications (5			cifications (5)	Torque control		
rev/min	Control rod travel mm 2	rev/min 3	Control rod travel rnm 4	Control red travel rnm 5	rev/min 6		Control rod travel	ļ	Control rod travel	rev/min	Control rod (trave)
-	-	•	•	10,8 4,0 1050	932-942	-	•	-	• .	-	-

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

900 - 905 min⁻

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel delivery characteristics			Starting fuel delivery Idle speed Control		
rev/min	crn ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5		rev/min 6	cm ³ /1000 strokes/ mm 7	
850	183,0-185,0 (18 0 ,0-188,0)	-	-	-		100	160,0-180,0 (156,0-184,0)	

Checking values in brackets

9.83

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WPP 00 1/4 MB 21.9a

4. Edition

PE 12 P 120 A 320 LS 3819

RQ 750 PA 635

supersedes 3 · 83

company: Daimler-Benz OM 424 A

1- 5- 9- 8- 3- 4- 11- 10- 2- 6- 7- 12 0-15-60-75-120-135-180-195-240-255-300-315° -0,5° (-0,75°)

330 kW (449 PS)

Generating sets

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

Komb.-Nr.0 401 840 705

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings Port closing at prestroke (3.95-4.15)

mm (from BDC)

Cv1. 12

750-755 min

		10,50 1,10,			<u> </u>	
Rotational speed rev/min 1	Control rod travel ਜਨਮ 2	Fuel delivery cm ³ /100 strokes 3	Cifference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ / 196 strükes 3	Spring pre-tensioning (torque-control valve) sam 6
700	11,940,	1 19,3 - 19,5	0,5(0,8)			
300	4,8-5,	0 1,4 - 2,0	0,8(1,2)			
	<u> </u>		ļ	<u> </u>		_

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Control rod Control travel	Control red travel	Control red travel	Test specifications Control rad	Control rod
	5 6	rev/min mm 7 8	rev/min mm 9 10	rev/min trave) 11 12
	10,9 4,0 900 750-755 780-790 9 0 - 1,0	•		-

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control red travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever np. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics	3	Starting f	uel delivery d G
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min	cm³/-1000 strokes		rev/min 6	cm ³ /1000 strokes / mm
700	193,0 - 195,0 (190,0 - 198,0)		•	•		100	160,0 -180,0 (156,0-184,0)

Checking values in brackets

WPP 001/4 SCA 14,2 d 2

2. Edition

:OII-150 4113

PE 8 P 120 A 920/4 LS 7008 X RQV 200-950 PA 547-6 Komb.-Nr. 0 402 648 815 1-2-7-3-4-5-6-8 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$ Values only apply to test nozzie-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes 1.86
company: Saab-Scania
engine. DSC 14 02

engine.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control sod	(4,45~4,65) Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 stroke s 3	cm ³ / 100 strokes 4	mm 2	cm³/100 strokes 3	mm 6
700	13,1+0,1	18,7 - 18,9	0,7 (1,0)			3,3 [±] 0,1 (3,0-3,5)
225	4,5-4,7	1,4 - 1,8	0,3 (0,6)			(3,0-3,5)

Adjust the fuel defivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Cliding	lague travel
deflection	rev/mià Control rod travel	Control rod (a) travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Silding s	leeve travel
lever	mm	rev/min (Sa	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10.	11
max.	990	15,2-17,8	-	٠-	-	ca. 10	100	min. 5,9	200	1,0-1,2
ca. 60	12,1	9 9 0-1000					225	4,4-4,6	450	3,3-3,8
	4,0	1110-1140					310-	370 = 2.0	700	5,0-5,2
	1250	0 - 1,0		ļ					950	7,9
				1						
L				1		3	Î			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter	d stop	নিতাational-speed উলাহোতি গোৰেলাৰ্ডাহাৰ হচ্ছত	\smile	Fuel deliv	very characteristics 5a	Starting Idle switching	,)	Torque- travel	control 5
tev/min	cm³/1000 strokes	rav/min	40	rev/min	cm ³ /1000 strokes	_	1_	res/min	travet mm
LDA 700	0,9 bar 187,0-189,0 (184,0-192,0		*	LDA 950 LDA 500	0,9 bar 1d1,0-1d9,0 (179,0-191,0) 0 bar 156,0-160,0 (154,0-162,0)	225	250,0-300,0 =20,0-21,0 mm RW 4,4-4,6 mm RW	-	

Chucking values in brackets

* 1 mm less control rod travel than col. 2

4.00

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D. Adjustment Test for Manifold Pressure Compensator

SCA 14,2 d 2

Testatn =

500

rev/min decreasing pressure ~ in bar gauge pressure

300			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gaugé pressure = bar	Gauge pressure = bar	mm (1) .
PE8PLS 7008 X +RQVPA 547-6	0,90	0 0,29 0,24	13,1 - 13,2 11,4 - 11,6 12,7 - 12,8 12,1 - 12,3

Notes

(1) when n =

rev/min and

bar (= maximum full-load control rod travel)

SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 3.5.1985
- Start of fuel delivery-engine: 22° before TDC at RW = 6,0-8,0 mm
- Firing sequence, engine : 1-5-4-2-6-3-7-8
- ** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 3,1 mm.

En BLL

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 ₩WW 2,4 d

5 . Edition

VE 6/10 F 2400 L 116-1 0 460 406 019

Overflow temperature 45° C

supersedes 5.84 company: VWW

engine: 087 - T

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

loil-ISO 4113

Pre-stroke setting see VDT-W-460/... Rot. speed Charge-air press. Difference in **1. Settings** bar (kgf/cm²) delivery cm3 1500 1,4-1,8 0,75 mm 1.1 Timing device travel 1500 5,7-6,3 0,75 1.2 Supply-pump pressure bar (kgf/cm²) 600 26,5-27,5 cm³/1000 strokes 1.3 Full-load delivery with charge-air pressure 1500 cm³/1000 strokes Full-load delivery without 43,0-44.0 0,75 2,5 (3,0) charge-air pressure 415 6,0-10,0cm³/1000 strokes 1.4 Idle regulation 0 2,0 (3,0) 100 min. 42.0 1.5 Full-speed regulation cm³/1000 strokes 2675 10,0-16,0 cm³/1000 strokes 0.75 1.7 Load-dependent port-closing

2. Test Spec	ifications	checking values in br	ackets ()		· · · · · · · · · · · · · · · · · · ·	
2.1 Timing device LDA=0,75 bar	n = rev/min mm	1200 0,2-1,0(0-1	,3) (0,	1500 ,9-2,3)	2400 4,1-4,9(3,	8-5,2)
2.2 Supply pump LDA=0,75 bar	n = rev/min bar (kgf/cm²)	600 3,3-3,9			2400 7,8-8 ₉	\$
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-	153)	2400 (0,75 bar) 55-138(40-153)		
2.3 Fuel deliveries	L				3. Dimen	for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	2825 2675 2400 1500 800 * 600	max. 6,0 35,6-37,6 33,5-34,5	(9,0-17,0) (34,3-38,9) (42,2-46,8) (31,0-37,0) (24,0-30,0)	0,75 0,75 0,75 0,75 0,30 0	K KF MS SVS	3,2-3,4 6,3-6,6 1,7-1,9 2,4
switch-off mech. electr.	2400 400	0			AXK BXL	21,8-23,8 9,4-12,7
End stop	415 750 400 500	max. 3,0 min. 20 max. 30	(4,0-12,0)		Use ad	roke 4,2 mm justing nut o correct.
2.4 Solenoid	cut-in voltage	min. 1				,

WPP 001/4 FIA 8,1c

2. Edition

PES 6 MN 90/720 RS 1005 RQV 300-1300 MW 9 DR 0 403 446 107

supersedes 3.83 company: Fiat

8360.05.670 engine

117,7 kW (160 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings End of pump delivery 5,10-5,20

RW = 5 0 mm

Rotational speed fev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	11,7+0,2	8,9-9,1	0,3(0,5)			
300 800	3,8-4,0 12,4+0,2		0,3(0,5) 0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/miss Control rod travel mm 2	mm -	기	Degree of deflection of control lever	rev/min	Control rol travel mm 6	d ①	Degree of deflection of control lever 7	rev/min	Control rod travel	rev/min	mm
max.	1300 1480	15,2-17,8 0-1,0	3	-	•	-		ca.21	300	3,8-4,0 in.7,0		
ca.60°	10,8 4,0	1350-1360 1420-1460							350-3	90=2,0	,	
								(3a)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

	d stop np. 40°C (104°F) 2	intermediate speed			intermediate speed		Starting fuel delivery 6 Idle switching point		Torque- travel	Control 6
(ev/min	cm³/1000 strokes .	rev/min	rev/min	cm ³ /1900 strokes	rev/min	cm ³ /1000 strokes	fev/min			
<u> </u>	12	3	4	5	6	7	8	9		
1300	89,0-91,0 (88,0-92,0)	1350-1360*	800	89,0-91,0 (88,0-92,0)	100	20,0-21,0 (min. 130)	900 1200	12,4+0 11,7+0		
					,					

Checking values in brackets

1 mm less control rod travel than col. 2

10.00

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Festoil-ISO 4113

WPP 001/4 PEN 0,6a

3. Edition

VA 2/100 H 1200 CL 162 0 460 302 006

supersede 82 companyVolvo-Penta

engine. X2

 $0.3_{mm} \pm 0.02 (\pm 0.04)$ Pre-stroke setting plunger lift of 0.36 mm related to outlet "B".

2. Test Specifications Checking values in brackets

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment **VDT-WPP 161/4 B**

Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press kp/cm²	Difference in delivery cm ³
1 1 Timing device travel	1000	3,5-4,3 mm		
1 2 Supply pump pressure	1000	4,9-5,4 kp/cm²		
1.3 Full-load delivery without charge air pressure	1000	27, 5-28, 5 cm ³ /1000 strokes		2,0
Full-load delivery with charge-air pressure		cm³/1000 strokes		
1 4 Idle speed regulation	250	7, 0-13, 0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 85, 0 cm ³ /1000 strokes		
1 6 Full load speed regulation	1250	9,0-17,0 cm ³ /1000 strakes		
	1	1	ľ	

2.1 Timing device	rev/min	400-510(370-	540)	1000	1100-1250
	mm	Start		(3,2-4,6)	4,3-5,0(4,0-5,3)
22 Supply pump	rev/min	200		1000	1200
	kp/cm²	1,2-1,7(1,0-	1,9)	(4,7-5,6)	5, 6-6, 1(5, 4-6, 3)
Overflow delivery	rev/min	500			1200
	cm³/10 s	55-100(40-	110)		55-100(40-110)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1270-1320	0		
		(1250-1340) 1250		(8,0-18,0)	
		1150	26,5-28,5	(25,5-29,5)	
		1000		(27,0-29,0)	
		500	18,0-21,0	(17,0-22,0)	
					•
	Stop	1200	0		
Idle stop	Full	270-320	0		
		(250-340) 250		(6,0-14,0)	
	Start	100	mind.85,0		
End stop		150-250			

Angle to the stop plate	Pre-setting dimensions
Pump $\alpha = 20 \pm 4^{\circ}$ $\beta = 25 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump = 4,5 mm Dimension IV Dimension V 24,6 mm

Test Specifications Distributor-Type Fuel Injection Pump

WPP 001/4 PEN 0,6b

3. Edition

VA 2/100 H 1300 CL 162-1 0 460 302 008

supersedes 6.82 **PENTA** company MO 7A engine

Pre-stroke setting 0.3 mm \pm 0.02 (\pm 0.04) Setting of the pointer at a stroke of 1 mm in relation to outlet "R"

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

retacton to outlet b	e setting see rever	36 3106		
1. Settings	rev/min	Settings	Charge-air press kp/cm²	Difference in delivery
1 1 Timing device travel	1000	3,5-4,3 _{mm}		
1.2 Sunply pump pressure	1000	4,9-5,4 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1000	31,5-32,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure		cm³/1000 strokes		
1 4 Idle speed regulation	250	7, 0-13, 0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 85, 0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1350	9,0-17,0 cm ³ /1000 strokes		

2. Test Sp	ecificatio	ons Checking yalu 400-510(570-	es in brackets	700	1000	1100-1250
2.1 Timing device	rev/min mm	Start				4, 3-5, 0(4, 0-5, 3)
22 Supply pump	rev/min kp/cm²	200 1,2-1,7(1,0-	2,9)	(4,	1000 7-5,6)	1300 6,0-6,5(5,8-6,7)
Overflow delivery	rev/min cm³/10 s	500 55-100(40-	110)			1300 55-100(40-110)
23 Fuel deliveries						
Speed control lever	Delivery lever	rev/min	cm³/1000 strokes	;	Charge-	air pressure kp/cm²
End stop	Full	1370-1420 (1350-1440) 1350 1310-1330 1280 1000 500		(8,0-18,0) (27,5-31,5) (31,0-33,0) (20,5-25,5)		
	Stop	1300	0			•
Idle stop	Full	270-320 (250-340) 250	0	(6,0-14,0)		
	Start	100	mind.85,0			
End stop		150-250				

Angle to the stop plate	Pre-setting dimensions
Pump $ \alpha = 25 \pm 4^{\circ} $ $ \beta = 30 \pm 8^{\circ} $ $ \gamma = 30 - 8^{\circ} $ $ \delta = 60 + 8^{\circ} $	Pump Dimension 1₹ 4,5 mm Dimension ₹ 24,65 mm

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VOL 3,6 n 1 2. Edition

VE 6/11 F 1800 L 18

Overflow temperature 45° C

supersedes 3.83 company: VOIVO engine:

0 460 416 001

Setting of the pointer at a strcke of 1 mm in relation to outlet "A" All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

 $0,2 \text{ mm} \stackrel{+}{=} 0,02(0,04)$

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,2-3,6	mm	0,74	
1.2 Supply-pump pressure	1500	6,0-6,7	bar (kgf/cm²)	0,74	
1.3 Full-load delivery with charge-air pressure	500	47,0-49,0	cm ³ /1000 strokes	0	
Full-load delivery without charge-air pressure	1500	63,5-64,5	cm³/1000 stroķes	0,74	3,0
1.4 Idle regulation	325	8,0-12,0	cm ³ /1000 strokes	0	2,0
1.5 Full-speed regulation	100	min. 72,0	cm³/1000 strokes	0	
1.6 Start	2040	19,5-25,5	cm ³ /1000 strokes	0,74	
1.7 Load-dependent port-closing					

2. Test Spec	cifications	checking values in brackets ()	
2.1 Timing device LDA = 0,74 bar	n = rev/min mm	1000 0,7-1,7(0,5-1,9)	1500 (2,7-4,1)	1800 4,5-5,3(4,2-5,6)
2.2 Supply pump LDA = 0,74 bar	n = rev/min bar (kgf/cm²)	400 2,0-2,7		1800 6,9-7,6
Overflow delivery	n = rev/min cm ³ /10 s	500 55-110(40-125)		1800 55-110(40-125)
2.3 Fuel deliveries	!			3. Dimensions

	_			
2.3 Fuel deliveries				
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press. bar (kgf/cm²)
End stop	2140-2220 2120 2040 1800 1500 * 500	0 max. 6,0 57,2-59,8 51,5-53,5	(18,0-27,0) (55,8-61,2) (61,3-66,7) (49,1-55,9) (44,6-51,4)	0,74 0,74 0,28
switch-off	1800	0		
idie stop	370-450 325	0	(5,5-14,5)	
2.4 Solenoid	cut in voltage	min.	10 V	

3. Dimens	for assembly			
Designation	and adjustment mm			
к	-			
KF	5,9-6,2			
MS	1,5-1,7			
svs	max.4,2			
A	5,8-10,8			
8	10,4-15,6			
Observations	L 			
*ILDA-stroke 4,0 mm Use adjusting nut (46) to correct.				

BOSCH

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 IHC 5,8 t 5. Edition

Testoil-ISO 4113

VE 6/12 F 1350 R 64

Overflow temperature 45° C 0 460 426 016 Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

supersedes 9.85 company: IHC

engine: D 358/PC 11

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

DHK: 1 688 901 020

see VDT-W-460/...

o-stroke setting	mm	172+3	bar	
	7			۰

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1150	5,2-5,6	mm		
1.2 Supply-pump pressure	1150	5,6-6,2	bar (kgf/cm²)		
1.3 Full-load delivery with	-	-	cm³/1000 strokes		
charge-air pressure Full-load delivery without	1150	84,0-85,0	cm³/1000 strokes		3,5 (4,5)
charge-air pressure 1.4 Idle regulation	500	14,5-20,5	cm³/1000 strokes		3,5 (4,5)
1.5 Full-speed regulation	1430	44,0-50,0	cm³/1000 strokes		
1.6 Start	100	min.100,0	cm³/1000 strokes		
1.7 Load-dependent port-closing	_	_			

2. Test Spe	citications	checking values in brackets ()		
2.1 Timing device	n = rev/min	600	1150	1300	
	mm	1,6-2,4(1,3-2,7)	(4,7-6,1)	5,3-6,1	(5,0-6,4)
2.2 Supply pump	n = rev/min	400		1300)
	bar (kgf/cm²)	2,7-3,3		6,0-6,6	
Overflow delivery	n = rev/min	500		1350)
	cm ³ /10 s	55-138(40-163)		55-138(4	
2.3 Fuel deliveries				3. Dimer	nsions tor assembly and adjustment
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	1540 1480 1430 1300 1150 800 500	max. 2,0 9,0-17,0 (8,0-18,0) (42,0-52,0) 80,0-83,0(78,5-84,5) (81,5-87,5) 77,0-81,0(76,0-82,0) 65,0-70,0(63,7-71,3)		K KF MS SVS	3,2-3,4 5,7-5,9 1,0-1,2 max. 6,0
switch-off			• •	, A XK	20,2-22,2 15,8-19,8
die stop	570 520 500	max. 1,0 min. 4,0 (12,5-22,5)		Observations	
End stop	250 350	min. 100 max. 800			
2.4 Solenoid	cut-in voltag	e min. 10 V rated voltage 12 V.			

Testoit-ISO

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 FOR 2,5a

1. Edition

VE 4/11 F 2000 R 119 0 460 414 007

R119-1

...013

supersedes Ford company: Triton engine:

DHK 1 688 901 023

Fuel injection test tubing 6x2x450 mm

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

Overflow temperature 45° C

En

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgt/cm²)	Difference in delivery cm ³
1.1 Timing device travel 1.2 Supply-pump pressure 1.3 Full-load delivery with charge-air pressure Full-load delivery without charge-air pressure 1.4 Idle regulation 1.5 Full-speed regulation 1.6 Start 1.7 Load-dependent port-closing	1400 1400 F 500 E 1000 415 2200 100	2,7-3,1 5,7-6,5 33,5-34,5 39,5-40,5 9,0-11,0 15,0-17,0 min. 70,0	mm bar (kgf/cm²) cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes		3,5 (4,0) 3,0 (4,0)

2. Test Spe	cifications	checking values in brackets ()	
2.1 Timing device	n = rev/min mm	See page 2		
2.2 Supply pump	n = rev/min bar (kgf/cm²)	1900-1000 min ⁻¹ Supply-pump pressu	re difference 2.4 - 2.8 bar	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)	2000 55-138 (40-153)	
				

			00 100 (11	
2.3 Fuel deliveries				3.
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm²)	Des
End stop	2350 2300 2200 D2000 1000 F 500	max. 8,0 2,0-12,0 (11,5-20, 37,0-40,0 (55,9-41) (37,4-42, 33,5-36,5 (31,6-38)	,1)	
switch-off				
electr.	415 (Control	max. 3,0 lever in idle position		
ldie stop	415 500	(5,5-14,5 3,5-8,5 (1,5-10,5	5)	о́ьs Se
End stop	300 480	min. 40 max. 37		
2.4 Solenoid	cut-in voltage	min. 10 Volt rated voltage 12 V.		

3. Dimens	sions for assembly and adjustment
Designation	mm
K	3,2-3,4
$^{KF}\mathbf{K}_{\mathbf{OT}}$	0,6-0,8
MS	1,7-1,9 4,7
svs	
AXK	18,0-20,0
вХг	10,4-13,8
Diservations See page 2	!

2.1 Timing device

n = min ⁻¹	mm	Voltage at thermostat
1000 (10)	0.9-1.7 (0.6-2.0)	12 Volt
1200 (10)	1.7-2.7 (1.5-2.9)	12 Volt
1400 (10)	(2.7-4.1)	12 Volt
1650 (10)	4.8-5.8 (4.6-6.0)	12 Volt
1900 (10)	7.0-8.0 (6.8-8.2)	12 Volt
* 500 (11)	4.1-4.9 (3.8-5.2)	0 Volt
* 1250 (12)	5.1-7.1	0 Volt

* Note:

Screw out ball-type valve by 2 mm

Remarks:

Coordination, pump with engine piston stroke in lock position at 3 mm timing-device travel 0.64 \pm 0.2 mm

Hydraulically actuated torque control stroke = 10 \pm 0.1 mm

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 SOF 2,5m

1. Edition

VE 4/9 F 2100 R 214

0 460 494 173

Overflow temperature 45° C

supersedes Sofim company: 301 1111 8144.67.2000

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0,3

mm $\stackrel{+}{=}$ 0,02(0,04)

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel 1.2 Supply-pump pressure 1.3 Full-load delivery with charge-air pressure Full-load delivery without charge-air pressure 1.4 Idle regulation	1100 1100 - 1100 400	3,5-3,9 4,7-5,3 41,5-42,5 11,0-15,0	mm bar (kgf/cm²) cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes	ua (kgreiii-)	max. 2,5
1.5 Full-speed regulation 1.6 Start 1.7 Load-dependent port-closing	2350 100 1100	19,0-25,0 min. 60	cm ³ /1000 strokes cm ³ /1000 strokes		

2. Test Spe	ecifications	checking values in brackets ()	
2.V ciming device	n = rev/min mm	700 0,8-1,6(0,5-1,9)	1100 (3,0-4,4)	2000 8,6-9,4(8,3-9,7)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	700 3,5-4,1		2000 7,0-7,6
Overflow delivery	n = rev/min cm ³ /10 s	600 41-86 (26-98)		55-138(40-153)
2.3 Fuel deliveries Speed control lever	Rot. speed	I Fuel delivery	Charge-air pre	3. Dimensions for assembly and adjustment Designation

	<u> </u>		
2.3 Fuel deliveries			
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm²)
End stop	2550 2450 2350 2100 2000 1100 600	max. 3,0 6,5-13,5 (6,0-14, (18,0-26, 41,9-44,9 (41,1-45, (41,2-45, (39,7-44, 36,0-39,0 (34,5-40,	0) 7) 8) 3)
switch-off			
idle stop	400 450 700 1000	2,0-8,0 (9,0-17, 2,0-8,0 (1,0-9, 1,5-7,5 (0,5-8, max. 2,5	0) 0) 5)
Endanschlag	250	min. 55,0 max. 50.0	
2.4 Solenoid	cut-in voltage		

3. Dimens	ions for assembly and adjustment
Designation	and adjustment mm
K	-
KF	5,2-5,5
MS	1,7-1,9
svs	4,3
. ^	
В	
Observations	I

WPP 001/4 MWM 5.9a4 1. Edition

PES 6 A 80 D 320 RS 1271 RSV 350-1500 A0B 2207 R

Komb.-Nr. 9 400 085 250

supersede \$ company MWM D 229-6

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,2-2,3 (2,15-2,35)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm1/100 strokes	cm ¹ / 100 strokes 4	mm 2	cm /100 strokes	mm 6
1500	9,5-9,6	5,5-5,6	0,25(0,4)			
350	6,9-7,1	0,9-1,2	0,4(0,35)			

Adjust the fuel delivery from each outlet according to the values in lacksquare

B. Governor Settings

	er rated speed	t rev/min	Interme	ediate rate	speed	4	Lowe	er rated speed	(3) to	rque control
Degree of deflection of control lever	travel mm	travel mm rev/min				Control- lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
ļ <u> </u>	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 18	350	6,5	1500	9,5-9,6
	x = 1	1,25					100	min.19,0	500	9,5-9,7
ca. 55	8,5	1540-1545					350	6,9- 7,1	400	10,7-11,3
23	-	1580-1590 0,3- 1,7					430-49	0,20		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull·load stop emp 40°C (104°F)		Rotatronal- speed limitat			fuel delivery 5	4a Id	e stop
rev/min	cm ³ /1000 strokes 2	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes	rev/min	Control rod travel mm
1500	54,5-55,5 53,0-57,0)	1540-1545*	500	40,5-42,5 (38,5-44,5)	100	19,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

5.86

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WPP 001/4 MWM 3,9b3 1. Edition

PES 4 A 80 D 320 RS 1282 RSV 350-1500 A0B 2207 R

Komb.-Nr. 9 400 085 249

company MWM
engine D 229-4

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,2-2,3 (2,15-2,35)

mm (from BDC)

Rotational speed rev/min	Control rod travel	Fuel delivery cm/100 strokes	Difference cm ¹ / 100 strokes	Control rod travel	Fuel delivery	Spring pre tensioning (torque control valve)
1	2	3	4	2	3	6
1500	9,5-9,6	5,5-5,6	0,25(0,4)			
350	6,9-7,1	0,9-1,2	0,4(0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	cr rated speed Control rod travel mm	d rev/min Control rod travel mm rev/min	Interme	ediate rated	speed	Control lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	rev/min	rque control Control rod travel mm
loose	800 x =	0,3-1,0 1,25	-	•	-	ca. 18	350 100	6,5 min.19,0	1500 500	9,5-9,6 9,5-9,7
ca. 55		1540-1545 1580-1590 0,3- 1,7					350 430-490	6,9- 7,1 =2,0	400	10,7-11,3

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Government

	ull-load stop emp 40°C (104°F)	Rotational- speed limitat		uel delivery haracteristics	Starting I	ma work (E)			
rev/min 1	cm ³ /1000 strokes 2	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm-/1000 strokes 7	rev/min 8	Control rod travel mm	
1500	54,5-55,5 (53,0-57,0)	1540-1545*	500	40,5-42,5 (38,5-44,5)	100	19,0-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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WPP 001/4 MB 5,7 m 3

1. Edition

PES 6 A 80 D 410 RS 2085 Y

EP/RSV 350-1200 A2B 713 DL

En

company Daimler-Benz OM 352

engine 114 DC/

114 PS/2400 min⁻¹ (1) 143 PS/2400 min⁻¹ (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Festoil-ISO 4113

2,15-2,25 (2,10-2,30)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel	Fuel delivery . cm ^{1/} 100 strokes 3	Difference cm ² / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm*/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000	9,0	4,3-4,8	0,3			
200	6,0 15,0 9,0	1,8-2,6 10,2-11,4 2,3-3,3				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1)

1 Uppe	er rated speed		Intern	nediate rai	ted speed	4	Low	er rated speed	(3) to	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
ca. 52	1300 1360 1420	16,0 11,8 6,8	with spri		uxiliar	ca. 20	350 100	7,5	1180 800 500	0 0,3-0,5 0,6-0,8
23	1400 1450 1500 1620	7,2-8,6 4,8-6,4 2,6-4,8 0-1,0	with spri	auxi ing	liary		350 500 650 780	7,3-7,7 4,4-6,8 1,4-3,6 0-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational- speed limitat		uel delivery naracteristics	Starting lidle	fuel delivery 5	(4a) idi	e stop
Test oil to	emp 40°C (104°F) cm1/1000 strokes 2	Note. changed to) rev/min 3	rev/min	cm ¹ /1000 strokes	rev/min	cm#1000 strokes	rev/min	Control rod travel mm
(1) 1180	54,5-57,0 (53,5-58,0)	1210-1220*	800 500	50,0-53,0 (48,5-54,5) 49,5-52,5 (48,0-54,0)	100	142,0-148,	0 350	7,5

Checking values in brackets

6.86

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^{* 1} mm less control rod travel than col. 2

				(2)						
1 Upper	rated speed	 I	Inte/mediate	rated spe	ed	4 Lowe	r rated spi	eed	(3) To	que control
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 44	1200 1250 1300	16,0 10,7 4,8	without spring	: auxi	liary	ca. 15	350 100	6.0 19,0-21,		0 0,2-0,4 0,8-1,0
ca. 42 ⑤	1200 1300 1450	ca. 5,0 ca. 1,0 0,3-1,0	with au spring	xilia	ry		350 600 850	5,7-6,3 1,8-3,8 0-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-l	oad stop	6 Rotational- speed limitat		3a) Fuel delivery characteristics		fuel delivery	(5a) Idle stop		
Test oil ten rev/min 1	np 40°C (104°F) cm ¹ /1000 strokes 2	Note changed to rev/min 3	rev/min 4	cm ⁴ /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	
(2) 1180	72,5-74,5 (72,0-75,0)	1210-1230*	١ _	70,5-73,5 (69,0-75,0)	100	137,0-143,0	-	-	
			69) 500	70,5-73,5 (69,0-75,0)					

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

Degree of deflection of control	rated speed	Control rod travel	Intermediate Degree of deflection of control	1	Control rod travel	4 Lowe Degree of deflection of control lever	rev/min	eed Control rod travel		que control Control rod travel
l (ever	rev/min 2	mm 3	lever 4	rev/min 5	mm 6	7	8	9	10	11
				<u> </u>						
	ļ	<u> </u>	ł							
⑤										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

6 Rotational- speed limitat		el delivery aracteristics	Starting Idle	fuel delivery	(5a) Idle	stop
Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes 7		Control rod travet mm 9
	speed limitat. Note: changed to	Note: changed to rev/min rev/min	Note: changed to rev/min rev/min cm³/1000 strokes	Note: changed to rev/min rev/min cm³/1000 strokes rev/min	Note: changed to rev/min rev/min cm³/1000 strokes rev/min cm³/1000 strokes	speed limitat characteristics Idle Note: changed to rev/min cm³/1000 strokes rev/min cm³/1000 strokes rev/min

Checking values in brackets

* 1 mm less control rod travel than col 2

40

WPP 001/4 MB 5.7 m 5

1. Edition

En

PES 6 A 80 D 410 RS 2085 Y EP/RSV 350-1300 A 2 B 713 DL

supersedes Company Daimler-Benz
OM 352

engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,10-2,30)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ¹ /100 strokes	cm ³ / 100 strokes 4	mm 2	cm ¹ /100 strokes	mm 6
1000	9,0	4,3-4,8	0,3			
200	6,0 15,0 9,0	1,8-2,6 10,2-11,6 2,3-3,3				

Adjust the fuel delivery from each outlet according to the values in $\ \square$

B. Governor Settings

1 Uppe	r rated speed		Intermed	diate rated	speed	(4)	Lowe	rated speed	(3) To	rque control
Degree of deflection of control	Control rod travel	travel			İ	Control- lever		Control rod travel		Control rod travel
lever 1	mm 2	mm rev/min 3	4	5	6	deflection in degrees 7	rev/min 8	mm 9	rev/min	mm 11
ca. 52	1300	16,0			ca. 20	350	7,5	1280	0	
	1360 1420	11,8 6,8	with sprin	out au ng	XIIIa	l y	100 350	19,0-21,0 7,3-7,7	800 500	0,1-0,3 0,2-0,4
	1400	7,2-8,6			•		500	4,4-6,8	300	0,2-0,4
2a	1450 1500 1620	4,8-6,4 2,6-4,8 0 - 1 0	sprin	auxili g	iary		650 780	1,4-3,6 0 - 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

6	all-load stop	Rotational- speed limitat	11301	uel delivery naracteristics	Starting I	fuel delivery 5	4a Id	e stop
rev/min	emp 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes	rev/min	Control root travel mm
1280	63,0-65,0 (62,0-66,0)	1310-1320*	800	55,0-58,0 (53,5-59,5)	100	142,0-148,	0 350	7,5
į			500	52,0-55,0 (50,5-56,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

6.86

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Geschaftsbereich KH. Kundendienst. Klz-Ausrustung. 6. 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH.

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WPP 001/4 MB 5,7 m 4

1. Edition

En

PES 6 A 80 D 410 RS 2085 Y BR-EP/RSV 350-1400 A 2 B 713 DL Supersedes

company engine Daimler-Benz OM 352 123 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,15-2,25

Port closing at prestroke

(2,10-2,30)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery . cm /100 strokes 3	Difference cm ² / 100 strokes 4	Control rod travel mm	Fuel delivery cm*/100 strokes 3	Spring pre-tensioning (forque control valve) mm
1000	9,0	4,3-4,8	0,3			
200	6,0 15,0 9,0	1,8-2,6 10,2-11,6 2,3-3,3				

Adjust the fuel delivery from each outlet according to the values in \Box

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm	rev/min Control rod travel mm rev/min	Interme	ediate rated	speed	Control- lever deflection	Lower	rated speed Control rod travel mm	3 To	rque control Control rod travel mm
1	2	3	4	5	6	in degrees 7	8	1 9	10	11
ca. 61	1400 1450 1530	16,0 12,7 6.0	with spri	out au	xilia	ca. 24 ry	350 100	6,5		0
29	1530 1600	8,4-10,8 4,4-7,8 1,8-5,2		auxil	iary		350 450 600 780	6,2-7,3 4,2-6,5 1,6-4,2 0 - 1,0	900 700 500	0,1-0,3 0,5-0,7 0,5-0,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

load stop			3a Fuel delivery characteristics		uel delivery 5	4a Idle stop	
np 40°C (104°F) m ³ /1000 strokes	Note changed to) rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
60,0-62,0 59,0-63,0)	1410-1440*	800	54,0-57,0 (52,5-58,5)	100	142,0-148,	0 350	6,5
53,5-56,5 52,0-58,0)		500	50,5-53,5 (49,0-55,0)				
	60,0-62,0 59,0-63,0) 53,5-56,5	speed limitat Note changed to) rev/min 3 60,0-62,0 1410-1440* 59,0-63,0)	speed limitat Note changed to) rev/min 3 rev/min 3 rev/min 3 800 59,0-63,0) 53,5-56,5	speed limitat Note changed to) rev/min 3 rev/min cm³/1000 strokes 60,0-62,0 1410-1440* 800 54,0-57,0 (52,5-58,5) 53,5-56,5 500 50,5-53,5	P 40°C (104°F) m³/1000 strokes Note changed to) rev/min 3 rev/min 6 60,0-62,0 1410-1440* 800 54,0-57,0 (52,5-58,5) 53,5-56,5 500 50,5-53,5	P 40°C (104°F) m³/1000 strokes Note changed to) rev/min 3 rev/min cm³/1000 strokes 5 rev/min 6 7 60,0-62,0 1410-1440* 800 54,0-57,0 100 142,0-148, (52,5-58,5) 53,5-56,5 500 50,5-53,5	P 40°C (104°F) Note changed to) rev/min 3 rev/min 6 rev/min 6 rev/min 8 60,0-62,0 1410-1440* 800 54,0-57,0 (52,5-58,5) 53,5-56,5 500 50,5-53,5

Checking values in brackets

* 1 mm less control rod travel than col 2

6.86

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WPP 001/4 MB 5,7 m 7

1. Edition

PES 6 A 80 D 410 RS 2085 Y

RSV 350-1100 A 2 B 2116 L

supersedes

OM 352 A

company engine

122 PS/2200 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2, 15-2, 25 Port closing at prestroke (2, 10-2, 30) mm

Testoil-ISO 4113

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference cm ² /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm (2)	cm /100 strokes 3	100 strokes 4	mm 2	cm ¹ /100 strokes	mm 6
1100	10,5+0,1	6,5-6,6	0,25(0,4)			
350	7,4-7,6	1,9-2,4	0,35(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever		reed rev/min rod Control rod travel mm rev/min 3	Interm	ediate rate	d speed	Control- lever deflection in degrees 7	Lowe rev/min 8	r rated speed Control rod travel mm	(3) To	rque control Control rod travel mm
ca. 45	1100 9,6 4,0	10,5-10,6 1140-1150 1200-1230		hout a	uxilia	ca. 24 ry	350 100	7,5 min. 19,0	1100 800	10,5-10,6 10,8-11,1
(2a)	1145 1250 1400	9,6 3,0-5,0 0,3-1,7		auxil	iary		350	7,4-7,6 0 = 2,0	500	11,5-11,6

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp=40°C (104°F)	Rotational speed limitat	(3a) F	uel delivery haracteristics	Starting Idle	fuel delivery 5	el delivery 5 4a idle stop	
rev/min 1	cm ¹ /1000 strokes	changed to) rev/m:n 3	fev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min	Control root travel mm
1000	65,0-66,0 (63,5-67,5)	1140-1150 (1135-1155)	800	66,0-68,0 (65,5-68,5)	100	72,0-82,0	350	7,5
			500	66,5-68,5 (66,0-69,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

6.86

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WPP 001/4 MB 5,7 m 6

1. Edition

En

PES 6 A 80 D 410 RS 2085 Y

RSV350-1200 A 2 B 2117 L

supersedes -

Komb.-Nr. 9 400 093 224

company Daimler-Benz

engine OM 352

OM 352 98 PS/2400 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,15-2,25 (2,10-2,30)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Oifference cm ^{-y} 100 strokes	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	cm ¹ /100 strokes	mm 6
1200	8,1-8,2	4,3-4,4	0,25 (0,4)			
350	7,5-7,6	1,4-2,0	0,35(0,45)			
					-	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed		Intermediate rated speed		(4)	Lowe	rated speed	3 forque control		
Degree of deflection of control lever 1	travel mm	Control rod fcave) mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
ca. 48	1200 7,2 4,0	8,1-8,2 1240-1250 1275-1305	withous spring	ut au	kiliar	ca.24 y	350 100	7,5 min. 19,0	1200 700	8,1-8,2 9,0-9,3
23		7,2 2,0-4,0 0,3-1,7	with sprin	auxili g	iary		350 640-70	7,4-7,6 0 = 2,0	500	9,5-9,6

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-toad stop	6 Rotational- speed limitat		uel delivery paracteristics			4a Idle stop	
rev/min	emp 40°C (104°F) cm³/1000 strokes 2	Note. changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm
200	42,5-43,5 (41,0-45,0)	1240-1250 (1235-1255)	700	43,5-45,5 (43,0-46,0)	100	72,0-82,0	350	7,5
			500	44,0-46,0 (43,5-46,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

6.86

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WPP 001/4 MB 3,8 i 2

1. Edition

PES 4 A 80 D 410 RS 2094 Z

EP/RSV 350-1300 A2B 713 DL

Daimler-Benz company OM 314 engine 76 PS/2600 min-1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25 (2,10-2,30)

mm (from BDC)

Rotational speed rev/min	Control rod travel	Fuel delivery cm //100 strokes	Difference cm ^{-/} 100 strokes	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve) mm
1000	9,0	4,3-4,8	0,3	2	3	6
200	6,0 15,0 9,0	1,8-2,6 10,2-11,6 2,3-3,3				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	er rated speed		Interm	ediate ra	ited speed	(4)	Lowe	er rated speed	(3) 10	rque control
Degree of deflection	Control rod travel	Control rod travel				Control- lever		Control rod travel		Control rod travel
of control lever	mm	mm rev/min				deflection in degrees	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 52	1300 1360	16,0 11,8	with	out a	uxiliar	ca. 20	350	7,5	1280	0
	1420	6,8	spri		ax I I I u I	ľ	100	19,0-21,0	800 500	0-0,2 0-0,2
	1400	7,2-8,6	7			E	350 500	7,3-7,7		0-0,2
23	1500	4,8-6,4 2,6-4,8			liary		650 780	1,4-3,6		
	1620	0_1_0	sprir	ıg			/00	0-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

6	ill-load stop	Rotational- speed limitat	11001	uel delivery haracteristics			da) idle stop		
rev/min	emp 40°C (104°F) cm ³ /1000 strokes 2	Note. changed to) rev/min 3	rev/min	cm ¹ /1000 strokes	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control root travel mm	
280	58,5-60,5 (57,5-61,5)	1310-1320*	800 500	51,0-54,0 (49,5-55,5) 46,5-49,5 (45,0-51,0)	100	142,0-148,	0 350	7,5	

Checking values in brackets

1 mm less control rod travel than col 2

BOSCH

Time icas control to thatel than cor 2

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WPP 001/4 KHD 8,7 b

1. Edition

En

PE 6 A 85 D 420 LS 2262 Z Komb.-Nr. 9 400 081 280

EP/RSV 300-1000 A1B 295 DR

supersedescompany engine KHD BA6L 1114

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

1,5-1,6 (1,45-1,65)

mm (from BDC) RW = 12,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre tensioning (torque-control valve)
rev/min	mm 2	cm 1/100 strokes	cm ² / 100 strokes	mm	cm ¹ /100 strokes	mm
1	2	3	4	2	3	6
1000	9,0-9,1	5,1-5,4	0,2 (0,35)			
200	9,0-9,1	3,6-4,2	0,2 (0,3)			
	İ	!		<u>[</u>		
				1		
					_L	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm		Intermed	trate rated		Control- lever dellection in degrees	Lower rev/min	raled speed Control rod travel mm	rev/m:n	rque control Control rod travel mm
ca. 56	1000 1040 1080	16,0 12,1-12,3 7,2	witho sprin	ut aux	kiliar	ca. 25 y	300 100 300	5,5-6,0 19,0-21,0 5,8-6,2	800 600 300	0,2-0,4 0,6-0,8 0,7-0,9
23	1070 1100 1140 1220	9,0-11,0 3,7-6,4 1,8-3,2 0,3-1,0	with sprin	auxil [·]	iary		400 500 600	2,8-3,6 1,0-3,0 0-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	III-load stop	6 Rotational- speed limitat		uel delivery naracteristics	Starting fuel delivery 5 4a idle stop			
rev/min	emp 40°C (104°F) cm ^{1/} 1000 strokes 2	Note: changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min	Control rod travel mm
980	87,5-88,5 (85,5-90,5)	1010-1020*	700	87,5-89,5 (86,0-91,0)	100	min. 120	•	•
800	86,5-88,5 (85,5-89,5)		500	90,5-93,5 (89,5-94,5)				

Checking values in brackets

7.86

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^{* 1} mm less control rod travel than col 2

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WPP 001/4 KHD 6.3 a

1. Edition

PE 4 A 85 D 420 LS 2262 Z Komb.-Nr. 9 400 091 201 EP/RSV 300-1000 A1B 1035 DR

supersedes KHD
company
engine
F4L 2114

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

1,5-1,6 (1,45-1,65)

mm (from BDC)

Cyl. 12

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre tensioning (torque control valve)
rev/min 1	mm 2	cm//100 strokes	cm ¹ / 100 strokes 4	mm 2	cm ¹ /100 strokes	mm
1000	9,0-9,1	5,1-5,4	0,3 (0,5)			
200	9,0-9,1	3,6-4,2	0,25(0,45)			
					•	

B. Governor Settings

Degree of deflection of control lever	er rated speed Control rod travel mm 2	rev/min Control rod travel mm rev/min 3	Interme	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	(3) To	rque control Control rod travel mm
ca. 56	1000 1040 1080	16,0 12,1-12,3 7,2	with spri		xiliaı	ca. 25 y	300 100	5,5-6,0 19,0-21,	500	0,4-0,6 0,7-0,9 0,7-1,0
2 a	1070 1100 1140 1220	9,0-11,0 3,7-6,4 1,8-3,2 0,3-1,0	with sprir	auxil Ig	iary		300 400 500 600	5,8-6,2 2,8-3,6 1,0-3,0 0-1,0		· • • • • • • • • • • • • • • • • • • •

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp 40°C (104°F)	6 Rotational- speed limitat	33 [1	Fuel delivery characteristics		luel delivery 5	4a Idle stop	
rev/min	cm/1000 strokes	changed to) rev/min 3	rev/min 4	cm1/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min	Control rod travel mm
980	84,0-85,0 (82,0-87,0)	1010-1030*	700	86,0-88,0 (83,5-90,5)	100	min. 120	-	-
800	84,0-85,0 (81,0-88,0)		500	max. 91,5 (max. 90,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

7.86

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WPP 001/4 CAS 8.3f

1. Edition

PES 6 A 85 C 420 LS 2264 EP/RSV 375-1000 A2 B596DR

supersedes -

company Case

A 401 BD

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2, 15-2, 25 (2, 10-2, 30)

Testoil-ISO 4113

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm/100 strokes	cm ¹ / 100 strokes 4	ოო 2	cm v100 strokés	നന 6
1000	9	4.1-4.5	0,4			
	6 12	1,1-1,9 7,2-8,0				
200	6	0,8-1,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm	rev/min Control rod travel mm rev/min 3	Intermed	diate rated	speed	Control- lever deflection in degrees 7	rev/min 8	Control rod travel mm	3 To	rque control Control rod travel mm
ca.45	1020 1080 1130	10,8 6,4 2.6	witho sprin	ut aux	iliar	ca.26	375 150 375	6,5 19-21 6,2-6,8	1000 800	0 0,8-1,0
23	1040 1100 1220	10,4-11,0 5,6- 6,0	•	auxili	iary		450 620	3,5-5,0 0-1	450	1,5-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	Rotational- speed limitat		uel delivery naracteristics	Starting I	fuel delivery 5	4a Id	ie stop
rev/min	cm /1000 strokes	changed to) rev/min 3	rev/min 4	cm ¹ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min	Control rod travel mm
1000	65,0-67,0 (64,0-68,0)	1040-1055 *	650 550 1100	79,5-83,5 (78,5-84,5) max. 82,5 (max. 83,5) 8,5-16,5 (7,5-17,5)	100	26,0-132,		12,5-16, /1000 н.

Checking values in brackets

* 1 mm less control rod travel than col 2

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WPP 001/4 MB 5,7 q 16

1. Edition

En

PES 6 A 90 D 410 RS 2293

Komb.-Nr. 9 400 085 252

RSV 350-1250 A0B 2208 L

Supersede Daimler-Benz company OM 352

engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,15-2,25 (2,10-2,30)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ¹ /100 strokes 3	Difference cm ¹ / 100 strokes 4	Control rod travel mm	Fuel delivery cm ¹ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1250	10,0+0,1	6,2-6,3	0,3(0,45)			
350	7,1-7,3	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

	r rated speed	rev/min	Interme	diate rated	d speed	4	Lower	rated speed	(3) To	rque control
Degree of deflection of control	travel mm	travel mm rev/min				Control- lever deflection	rev/min	travel	rev/min	travel mm
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11
loose	800	0,3-1,8	-	-	-	ca. 20	350	6,7	1250	10,0-10,1
	X =	2,5					100	min.19,0	500	10,0-10,2
ca. 49	9,0 4,0 1450	1290-1300 1340-1370 0,3-1,7					350 430-50 700	7,1-7,3 = 2,0 max.1,0	400	11,6-11,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational- speed limitat		uel delivery haracteristics	Starting	fuel delivery 5	(4a) Id	le stop
Test oil t rev/min	emp 40°C (104°F) cm//1000 strokes 2	Note. changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ¹ /1000 strokes	rev/min 8	Control rod travet mm
1250	61,5-62,5 (59,5-64,5)	1290-1300*	-	-	200	14,2-14,8 mm RW	350	7,2

Checking values in brackets

* 1 mm less control rod travel than col 2

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WPP 001/4 KHD 5,1 f

1. Edition

supersedes = KHD company engine KHD F5L 913

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,9-2,0 (1,85-2,05)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre tensioning (torque-control valve)
rev/min	mm 2	cm ¹ /100 strokes	cm ¹ / 100 strokes	mm	cm v100 strokes	mm
1	2	3	4	2	3	6
1400	11,2+0,1	6,4-6,5	0,25(0,4)			
325	8,4-8,6	1,0-1,3	0,2(0,35)			
				ĺ		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed		Interme	diate rated	speed	(4)	Lower	rated speed	(3) 10	rque control
Degree of deflection	Control rod travel	Control rod travel]	Control- lever		Control rod travel		Control rod travel
of control lever	mm	mm rev/min	4	5		deflection in degrees	rev/min	mm	rev/min	mm
ļ 	-		<u> </u>	13	10	<u> '</u>	8	9	10	11
loose	800	0,3-1,0	-	-	-		325	8,3	1400	11,2-11,3
	x =						300	8,4-9,1	700 500	11,8-12,1 11,8-12,1
VHca.60	8,7	1400-1450]	400	6,0-6,8		,.
	4,0	1500-1530				ĺ	550 1350	3,5-4,0	}	
Н тах. (2a)	1600	0,3-1,7				ļ ļ	1330	2,8-3,2		
			L			l	<u> </u>	<u> </u>		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

C	ull-load stop	Rotational- speed limitat	11361	uel delivery naracteristics	Starting Idle	Starting fuel delivery 5 4a		
Test oil to rev/min 1	emp 40°C (104°F) cm ¹ /1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes	rev/min 8	Control rod travel mm
1400	64,5-65,5 (63,0-67,0)	1430-1440*	700	57,0-59,0 (56,5-59,5)	100	100,0-140,	0 -	-
			500	54,5-56,5 (53,5-57,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschaftsbereich KH. Kundend inst. Klz-Ausrustung. 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuftgart 1. Printed in the Federal Republic of Germany Imprime en Republique Fédérale d'Allemagne par Robert Bosch GmbH.

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WPP 001/4 KHD 9,6 p

3. Edition

PES 6 A 95 D 410 RS 2416 Komb.-Nr. 0 400 846 534

RQ 750 AB 1199 L

supersedes 10.85

engine

BF 6 L 413 FRT 112 kW/1500 min⁻¹

Generating sets

All test specifications are value for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(1.85-2.05)

mm (from BDC)

		(1,85-2,05)				
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
710	11,8+0,	1 12,8 - 13,0	0,35(0,6			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider ck		Full-load s		_	cifications (4)	Idle spec			cifications (5)	Torque o	control (3)
rev/min 1	Control rod travel mm 2	0	rev/min 3	Control rod travel mm 4		rev/min 6	rev/min 7	Control rod travel critica		Control rod	rev/min	Control rod
-	-		•	-	10,6 3,5	,	-	-	-	•	•	-

Torque-control travel on flyweight assembly dimension a =

៣៣

750-755 min Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	lelivery on control tever pp. 40°C (104°F)	Control rod stop (3a)	Fuel delivery characteristics			Starting f	
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /~1000 strokes 5		rev/min 6	Control rod travel cm ³ /1000 strokes:/ mm 7
710	127,5 - 129,5 (125,5 - 131,5)	-	-	-		100	115,0 - 125,0 (112,0 - 128,0) = 13,2 - 13,4 mm RW

Checking values in brackets

40

WPP 001/4 MAN 11,1 c 1

1. Edition

PES 6 A 95 D 410 LS 2420

RQ 250/1050 AB 894 DL

supersedes _

Komb.-Nr. 0 400 846 370

company:

engine.

D 2556 MXUM

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1.25-1.45)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery		Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm³/100 strokes	cm³/ 100 strokes	mm	cm³/100 strokes	mm
1	2	3	4	2	3	6
1050	10,3+0,1	10,2-10,4	0,35(0,6)			
250	5,9-6,1	1,1-1,7	0,35(0,55)		
			1			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	ng of slider	Full-load : Setting po	•	•	cifications (4)	Idle spec	-		cifications (5)	Torque o	control (3)
rev/min	Control rod travel mm 2	rev/min 3	Control rod travel rom 4	Control red travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min	Control rod travel mm
600	15,6-16,4	600	16,0	9,3 4,0	1090-1105 1135-1165		6,0	250	min. 7,5 5,9-6,1 00 = 2,0	500	10,3-10,4 10,9-11,0 10,7-11,0

Torque-control travel on flyweight assembly dimension

0,30 _{mm}

1090-1105 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 3b	Starting f	uel delivery d (6)
rev/min	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	rnd travel cm³/1000 strokes:// mm 7
1050	101,5-103,5 (99,5-105,5)	-	500 700	max. 103,5 (max. 106,0) 100,0-103,0 (97,5-105,5)		116,5-126,5 113,5-129,5) = 13,5-14,1 mm RW

Checking values in brackets

4.86

BOSCH

WPP 001/4 MAN 11,1 c

Edition

PES 6 A 95 D 410 LS 2420,Z,Y RQ 250/1150 AB839DL (1-3)

supersedes 8.77 company M A N

LS 2420

RQ 250/1150 AB869DL (4)

D 2556..

LS 2420 Z

RQ 250/1050 AB894DL (5)

MXUH/MXUM (1 - 232 PS)

MUH/MUM

(2 - 200 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

MXUH/MXUN (3 - 210 PS)

A. Fuel Injection Pump Settings

MXUM/MXUH (4 - 192 PS)

Port closing at prestroke

estoil-ISO 4113

1,3 + 0,1

MXUM/MXUH (5 - 175 PS)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,4 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ .. 839 DL (1)

Checkin	g of slider	Full-load:	speed re	gulation		Idle spec	ed regula	ation		Torque o	control
		Setting po	oint	Test spe	cifications	Setting	ooint	Test spe	cifications		
rev/min 1	Control rod travel mm 2	rev/min	Control rod travel mm 4	rev/min 5	Control rod travel mm 6	rev/min 7	Control rod trävel mm 8	rev/min 9	Control rod travel mrii 10	rev/min	Control rod travel mm 12
600	15,7-16,3	600	16,0		15,0-15,4 10,0-14,4 0 - 9	540	0	150 250 350 440	6,6-8,1 4,5-6,7 1,5-4,0 0	1020	15,8-16,0 15,4-15,6 15,3-15,4

Torque-control travel on flyweight assembly dimension a = 0,2

Speed regulation At 190 1205 = 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np=40°C (104°F)	Control rod stop	Fuel deliv	very characteristics	Starting	Starting fuel delivery		
rev/min 1	cm³/-1000 strokes	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm ³ /1 000 strokes 7		
2420	with 839 DL -20 ^C							
1150 40 ⁰	120,5 - 122,5	Sp. 6-7	800 500	118,5 - 121,5 max. 121,5	100	11,9 - 12,9 (14±0,3 mm RW)		
1150	117,5 - 119,5		800 500	116,0 - 119,0 max. 118,5				

Checking values in brackets

4.86

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH.

B. Governor Settings

RQ	•		839DL	(2)
----	---	--	-------	-----

	Full load speed re Setting point	_	Idle speed regula Setting point	ation Test specifications (5)	Torque control
Control rod travel	rev/min Control rod travel mm 3	Control rod travel mm rev/min 5 6	Control rod travel rev/min mm 7 8	Control rod travel rev/min mm	Control rod travel mm
600 15,7-16,3	600 16,0	1170 15,0-15,4 1200 10,0-14,4 1250 0 - 9 1320		150 6,6-8,1 250 4,5-6,7 350 1,5-4,0 0	880 15,8-16,0 1020 15,4-15,6 1100 15,3-15,4
	0.3		L	100 - 1205 -	1 mm less contr

Torque-control travel 0 on flyweight assembly dimension a =

,2 mm need regulation. At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	•	-			
elivery on ontrol lever np 40°C (104°F)	Control rod stop (3a)	Fuel deliv	ery characteristics 3b	Starting f	uel delivery d Control
cm³/~1000 strokes 2	rev/min 3	rev/min	cm³/-1000 strokes	rev/min	rod travel cm³/1000 strokes / mm 7
with839 DL - 20 ⁰					
106,0 - 108,0	Sp. 6-7	800 500	108,0 - 111,0 max, 106,5	100	11,9 - 12,9 (14±0,3 mm RW)
				250	7 mm RW
103,0 - 105,0		800 500	105,5 - 108,5 max. 103,5		
	cm ³ /-1000 strokes 2 With 839 DL - 20 106, 0 - 108, 0	montrol lever (2) (3a) cm ³ /-1000 strokes rev/min 2 with 839 DL - 20 106,0 - 108,0 Sp. 6-7	montrol lever (2) (3a) (3a) (5a) (5a) (5a) (5a) (5a) (5a) (5a) (5	Cm ³ /-1000 strokes rev/min cm ³ /-1000 strokes 2 3 4 5 5 106,0 - 108,0 Sp. 6-7 800 108,0 - 111,0 max. 106,5 103,0 - 105,0 800 105,5 - 108,5	Cm ³ /-1000 strokes rev/min 3

Checking values in brackets

B. Governor Settings

RQ .. 839 DL (3)

Checkini PRG che rev/min	Control rod travel	Full-load s Setting po rev/min 3			rev/min	Idle spec Setting p rev/min 7	Control rod travel		cilications 5 Control rod travel mm	Torque o	Control rod (3) Control rod travel mm
600	15,7-16,3	600	16,0			540	0	150 250 350 440	6,6-8,1 4,5-6,7 1,5-4,0 0	1	15,8-16,0 15,4-15,6 15,3-15,4
	ontrol travel	nsion a	0,2	mm	Spe	eed regula		90 -	1205 =		1 mm less control rod travel

on flyweight assembly dimension a mm Speed regulation At C. Settings for Fuel Injection Pump with Fitted Governor

Full load d governor o Test oil ten	elivery on control lever np 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting f	uel delivery d Control
rev/min	cm ¹ /-1000 strokes	rev/min 3	rev/min	cm³/-1000 strokes	rev/min	rod travel cm ³ /1000 strokes / mm 7
2420Y	with 839 DL - 20					
1150 40 ⁰	109,5 - 111,5	Sp. 6-7	800 500	109,0 - 112,0 max. 112,0	100 250	11,9 - 12,9 (14±0,3 mm RW) 7 mm RW
1150	106,5 - 108,5		800 500	106,5 - 109,5 max. 109,0		

B. Governor Settings

RQ.. 869DL (4)

Checking of s PRG check Continued trave rev/min mm	rol rod	1	•	•	rev/min	ldle spee Setting p	Control rod travel	Test spe	cifications 5 Control rod travel mm	Torque d	Control rod travel	3
600 15	,7-16,3	600			15,6-16,0 11,0-15,0 0 - 9,6 0	550	0	150 120 350 450	4,7-6,9	-	-	

Torque-control travel on flyweight assembly dimension a =

, mm Speed regulation At 1190 - 1205 =

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	lelivery on control lever np=40°C (104°F)	2)	Control rod stop	Fu	el delive	ery characteris	tics 3b	Starting fi Idle spee	uel delivery (1 Control
rev/min	cm³/-1000 strokes 2	3	ev/min 3	rev	//min	cm³/- 1000 st	rokes	rev/min 6	rod fravel cm ³ /1000 strokes / mm 7
2420	with 869 DL - 2	0°							
1150	124,5 - 126,5		Sp. 6-7	5	00	max.	121,5	100	11,9 - 12,9 (14±0,3 mmRV)
40 ⁰								250	7 mm RW
1150	121,5 - 123,5	;		5	00	max.	118,5		

Checking values in brackets

B. Governor Settings

RQ	89ADL	(5)
----	-------	-----

Checking	g of slider	Full-load	speed re	gulation		idle spe	ed regula			Torque o	\sim
PRG che rev/min	Control rod travel	Setting portion of the setting portion of the	Control rod travel mm	Test spec Control rod travel mm 5	rev/min	Setting previous for the setting previous for	Control rod travel		Control rod travel mm	rev/min	Control rod travel mm
600	15,7-18,3	600	16,0	1070 1100 1140 1200	14,8-15,2 8,4-13,5 0 - 8,8 0		0	100 250 350 440	7,1-8,1 4,7-6,9 1,6-3,9	750 1050	15,8-16,0 15,0-15,2

Torque control travel on flyweight assembly dimension a =

0,3 _{mm}

Speed regulation At 1090 - 1105 =

1 mm tess control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np 40°C (104°F)	Control rod stop 3a	Fuel delivery characteristics 3b			Starting fuel delivery Idle speed		
rev/min	cm³/- 1000 strokes	rev/min 3	rev/min	cm ³ /- 1000 strokes		rev/min	rod travel cm ³ /1000 strokes/mm 7	
2420Z	with 894 DL-20 ⁰							
1050	91,5 - 93,5	Sp. 6-7	800 500	93,0 - 96,0 max. 92,5		100	11,9 - 12,9	
40 ⁰						250	7 mm RW	
1050	88,5 - 90,5		800 500	90,5 - 93,5 max. 89,5				

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 KHD 19.0

2. Edition

PE 12 A 95 D 610 LS 2449 Komb.Nr. 0 400 640 111

ROV 300-1200 AB 1105-1 L

supersedes 2.85

company: KHD

BF 12 L 413 F

1-4-9-8-5-2-11-10-3-6-7-12 0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5°(±0,75°)

326 kW /2400 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	(1.75-1.95)	mm (from BDC)			
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1200	11,0+0,1	10,9 - 11,1	0,35(0,6)			
300	6,4-6,6	1,1-1,7	0,35(0,55			
	-					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated: Degree of deflection of control lever	rev/min Control rod travel mm	Control rod (a) travel mm rev/min (2a) 3	Intermediate Degree of deffection of control lever	rated sp rev/min 5	Control rod travel mm 4	Lower rated Degree of deflection of control lever 7	speed rev/min 8	Control rod travel mm 3	Sliding s	mm
max. ca. 67	1250 10,0 4,5 1450	15,2-17,8 1240-1250 1300-1330 0 - 1,0	-		~	ca. 14 315-410	300	min. 8,0 6,4-6,6	250 650	0,6-0,9 4,2-4,4 6,3-6,5 9,0

Torque control travel a = 0.35

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		initation intermediate speed	high idle	ivery characteristics Sa speed Sb	Starting Idle switchin		Torque- travel	control 5
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 1200	0,7 bar 109,0-111,0 (107,0-113,0		LDA 800 LDA 500	109,5-112,5 (107,0-115,0) 0 bar	i	126,5-136,5 (123,5-139,5)	500 915	11,0+0, 11,3+0, 11,2+0, 11,0+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

KHD 19,0 g 1 - 2 -

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 12ALS 2449 + RQV AB 1105-1	0,70	0 0,32 0,22	11,2-11,3 10,4-10,5 10,9-11,0 10,5-10,7

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

 \odot

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 KHD 19,0 n 1

3. Edition

PE 12 A 95 D 610 LS 2453 RQV 1150 AB 996 L Komb.-Nr. 0 400 640 096 1- 4- 9- 8- 5 - 2 - 11- 10- 3 - 6 - 7 - 12 0-15-60-75-120-135-180-195-240-255-300-315° ±0,5° (±0,75°)

supersedes 4.85

company. KHD
engine. F 12 L 413 F
247 kW/2300 min
Generating sets

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,0-2,1

Port closing at pres	stroke	(1.95-2.15)	mm (from BDC)			
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1110	10,2+0,1	8,9-9,1	υ,35(0,6			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed			Intermediate	rated sp	eed	Lower rated	speed	4	Stidings	leeve travel
deflection	rev/min Control	Control rod travel	(19)	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		①
	rod travel	tev/min	28	of control lever	rev/min	mm 4	of control lever	rev/min	mm ③	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
ca. 26	9,2 4,0	1150-115 1175-119	5 0	-	•	-	-	-	-	1100 1150	0,5-0,9 2,7-3,1 5,5-5,8 9,0-9,1 10,5
i							<u>3</u>				

Torque control travel a =-

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test oil ten		limitation intermediate speed	Fuel deliv	very characteristics (58)	Starting Idle switching		Torque- travel	Control Control rod
rev/min	cm ³ /1000 strokes	rev/min 48)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
1110	88,5-90,5 (86,5-92,5)	1150-1155*	-	•	-	•	•	1

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

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WPP 001/4 CAS 8,3e

1. Edition

<u>En</u>

PES 6 A 85 D 420 LS 2460 EP/RSV 375-1000 A2 B596DR

supersedes =

company Case

engine A 401 BD

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25
Port closing at prestroke (2,10-2,30)

Testoil-ISO 4113

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre tensioning (torque control valve)
rev/min 1	mm 2	cm1/100 strokes	cm ³ / 100 strokes 4	mm 2	cm1/100 strokes	mm 6
1000	9	4,1-4,5	0,4			
	6 12	1,1-1,9 7,2-8,0				
200	6	0,8-1,6				

Adjust the fuel delivery from each outlet according to the values in E

B. Governor Settings

Degree of deflection of control lever	crated speed Control rod travel mm	rev/min Control rod travel mm rev/min	Intermed	diate rated	speed	Control- lever deflection in degrees	Lower rev/min 8	rated speed Control rod travel mm	rev/min	rque control Control rod travel mm
ca.45	1020 1080 1130	10,8 6,4 2.6	without auxilian			ca.26	375 150 375	6,5 19-21 6,2-6,8	1000 800	0
2 a	1040 1100 1220	10,4-11,0 5,6- 6,0 0,3- 1,0			iary		450 620	3,5-5,0 0-1	450	1,5-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

9	ull-load stop	6 Rotational- speed limitat		uel delivery naracteristics	Starting I	luel delivery 5	4a) Idle stop		
Test oil to rev/min 1	emp 40°C (104°F) cm ¹ /1000 strokes 2	Note. changed (c) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1000	65,0-67,0 (64,0-68,0)	1040-1055 *	650 550 1100	(78,5-84,5) max. 82,5 (max. 83,5)	100	26,0-132,	1	12,5-16 /1000 H.	

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.86

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. £ 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH. Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 DAF 8,3 k 2

3. Edition

PE 6 A 95 D 410 RS 2525 RQ 225/1200 AB 1156 L Values apply to fuel-injection test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes 1.85 company: DAF

Komb.-Nr. 0 400 646 268

DH 825

Port closing at prestroke

A. Fuel Injection Pump S

mm (from BDC)

		(1,90-2,10)				
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	10,4+0,	1 7,3-7,5	0,35(0,6			
225	5,9-6,	0,7-1,1	0,35(0,5	5)		
	<u>.</u> !					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	ck Control rod I travel	Full-load : Setting po rev/min	•	•	cifications 4	Idle spec Setting p	coint Control rod travel		cifications Control rod travel	Torque d	Control rod (3)
1	2	3	4	5	6	7	8	9	10	11	12
650 VH=		650	20,0		1245-1260 1300-1330 0-1,0	225	6,0	225 345 -	min. 7,5 5,9-6,1 385=2,0 max. 1,0	650 1035	10,4-10,5 11,3-11,4 10,9-11,1 10,5-10,8
	ontrol travel	sion a =	0,3	5 mm	Sne	ed regula		245 –1 2	60 min ⁻¹		1 mm less control

C. Settings for Fuel injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	2	Control rod stop	(3a)	Fuel delivery characteristics		3 b	Starting f	ruel delivery 6
rev/min 1	cm ³ /-1000 strokes 2		rev/min 3		rev/min 4	cm³/-1000 strokes 5		rev/min 6	red travel cm ³ /1000 strokes:/ mm 7
1200	73,0-75,0 (71,0-77,0)		•		800	74,5-77,5 (72,0-80,0		100	130,0-140,0 (127,0-143,0) = 19,5-21,0 mm RW

4.86

Geschäftsbereich KH. Kundendienat. Kfz-Ausrüstung.
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WPP 001/4 INA 3,3 a

1. Edition

Er

PE 4 A 85 D 320 RS 2539 Komb.-Nr. 9 400 091 203

EP/RSV 250-1600 A2B 1109 DR

supersedes=

company INARMO Cimarrón

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,45-1,65)

mm (from BDC) RW = 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ¹ /100 strokes 3	Difference cm ^{1/} 100 strokes 4	Control rod travel mm	Fuel delivery cm //100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1500	8,6-8,7	6,2-6,3	0,3(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

1 Uppe	r rated speed		Interme	Intermediate rated speed			Lowe	r rated speed	3 Torque control		
Degree of deflection of control	travel mm	Control rod travel mm rev/min			Control- lever deflection	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11	
ca. 70	1600	16,0	ui+ba	+		ca. 24	250	5,5	1100	0,7-0,9	
	1680 1750	10,9 5,8	sprin		xiliar	l I	250	5,7-6,3	800 500	1,1-1,3 1,2-1,4	
2 a	1700 1800 1950	7,8-10,5 1,7-4,0 0,3-1,0	with sprin	auxil Ig	iary		400 550	1,3-3,6			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	speed limitat			uel delivery naracteristics	Starting t	luel delivery 5	4a Id			
rev/min	emp 40°C (104°F) cm ³ /1000 strokes 2	Note. changed to .) rev/min 3	rev/min 4	cm ² /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min	Control rod travel mm		
1500	61,5-62,5 (60,5-63,5)	1610-1620*	900	56,5-58,5 (55,0-60,0)	100	min. 120	-	_		
1100	58,5-60,5 (57,0-61,0)		700	56,5-58,5 (55,0-60,0)						

Checking values in brackets

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^{* 1} mm less control rod travel than col 2

WPP 001/4 DAF 6,2 i 9. Edition

Testoil-ISO 4113

PE 6 A 90 D 320 RS 2547

RQ 250/1200 AB 1022 R

supersedes 1.84 companyDAF

DT 615

113 kW (153 PS)

Komb.-Nr. 0 400 646 256 Values apply to fuel-injection test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC) RW = 8,5 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,8+0,	7,1-7,3	0,3(0,45)			
250	6,9-7,1	1,1 - 1,5	0,2(0,4)			
Port closin	g differe	nce between co	ontrol-rod	travel 9	mm and max. 2	,5 - 3,5 ° camsha

Adjust the fuel derivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che rev/min 1	ck Control rod I travel	Full-load : Setting po rev/min 3	•		rev/min	1 .	Control red travel	Test spe	cifications 5 Control rod travet mm	rev/min	Control rod travel
650	19,6-20,4	650	20,0		1245-1265 1340 - 1370				nin. 8,5 6,9-7,1	-	•
VH =	max. 46°			1500				380-4			

Torque-control travel on flyweight assembly dimension a =

1245-1265 min⁻¹ Speed regulation: At

1 mm less control

C. Settings for Fuel Injection Pump with Fitted Governor

governor o	Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	39	Fuel deliv	(コレ)	Starting fuel delivery Idle speed		
rev/min 1	cm³/-1000 strokes	re 3	ev/min		rev/min 4	cm³/~1000 strokes 5		rev/min 6	Contret rod travel cm ³ /1000 strokes:/ mm 7
LDA 1000	0,7 bar 71,5-72,5 (69,5-74,5)				LDA 600	0 bar 51,5 - 53,5 (49,0 - 56,0)		100	135,0-145,0 (132,0-148,0) = 19,5-21,0 mm RW

Checking values in brackets

Test at n = 1000 rev/min decreasing pressure - in bar gauge pressure

DAF 6,2 i

-2-

Pump/governor	Setting		Measurement	diminution Control rod travel
				difference
	Gauge pressure =	bar	Gauge pressure = bar	mm (1)
RS 2547 + RQAB 1022 R	0,70		0,20 0,12 0	10,8 - 10,9 10,6 - 10,7 9,9 - 10,1 9,8 - 10,0
		•		

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

2. Edition

PES 4 A 90 D 410 RS 2570

RQV 300-1400 AB 1146-3 L

supersedes10.85

Komb.-Nr. 9 400 085 230

company: Daimler-Benz engine: OM 314 A

81.0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Port closing at pres	stroke	(1,95-2,15)	mm (from BDC)	RW = 9,0-12,0 mm					
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6			
1400	12,8+0,1	8,0-8,1	0,3(0.5)						
300	8,9-9,1	1,3-1,7	0,25(0,45)					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed	•	Intermediate	itermediate rated speed			speed		Sliding sleeve travel	
Degree of deflection of control	rev/min Control rod travel	Control rod (1a)	of control		Control rod travel	Degree of deflection of control		Control rod travel	Sildings	1
lever	mm	rev/min (2a)	lever	rev/min	mm 4	lever	rev/min	mm (3)	rev/min	mm
1 .	2	3	4	5	6	7	В	9	10	11
max.	1400	15,2-17,8	-	٠-	-	ca. 16		min.10,5		0,7-1,
ca. 64	11,8 4,0 1800					400-470	740-8	18,9-9,1 300= 2,0	550 775 950 460	2,7-3, 4,1-4, 5,2-5, 8,5
						3a				•

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) 2 rev/min cm³/1000 strokes		timitation high idle speed 5b intermediate speed		Starting Idle switchin	ne point	Torque travet	Control 5 Control rod travel	
LDA 1400	0,5 bar 80,0-81,0 (78,0-83,0)	3 1440-1450*	LDA 500 LDA 500	5 0,5 bar 74,0-76,0 (72,0-78,0) 0 bar 56,5-58,5 (54,5-60,5)	100	73,0-83,0 (70,0-86,0)	500	

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.86

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MB 3,8 n 12

-2-

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Setting	Measurement	diminution Control rod travel- difference
Gauge pressure = bar	Gauge pressure = bar	mm (1)
0,5	0 0,33 0,23	13,8-13,9 12,1-12,2 13,4-13,5 12,4-12,7
	Gauge pressure = bar	Gauge pressure = bar Gauge pressure = bar 0,5 0 0,33

Notes:

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

estoil-150 4113

Test Specifications Fuel Injection Pumps 1 WPP 001/4 IHC 9,0 a and Governors

2. Edition

PES 8 A 95 D 320 RS 2586 Komb.-Nr. 0 400 848 024

ROV 325-1400 AB1097 R

supersedes 1.83 company IHC

Suction-gallery pressure 2,5 bar

180 PS (133 kW)

Use overflow valve 1 417 413 019

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

rev/min

1400

325

Rotational speed | Control rod

mm

11,6+0,

7,2-7,4

Fuel delivery

cm³/100 strokes

7.2 - 7.

	mm: (from BDC)	= KW T7	2 mm	
	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
	100 strokes	നന	cm ³ /100 strokes	mm
	4	2	3	6
,4	0,3 (0,6)			
4	0,3 (0,55)		
		•	4	E .

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	eed	Lower rated	speed		Studing	lague traval
deflection of control	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	(1) (2)	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min	Control rod travel mm 3	rev/min	mm
max.	1430	15,2-17	,8	-		-	ca. 10	100	min. 8,0	-	-
ca. 67	10,6 4,0 1650	1440-14 1535-15 0 - 1	50 65 •0	i				610-6	7,2 - 7,4 70 = 2,0		
							3				

Torque control travel a =

mm

C. Settings for Fuei injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel deliv		Starting Idle switching	• •	Torque- travel	Control cod
rev/min	cm³/1000 strakes	rev/min 4a	rev/min	cm³/1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travei mm
1	2	3	4	5	6	7	8	9
1400	72,0-74,0 (70,0-76,0)	1440-1450*	•	•	100 325	80,0-90,0 (77,0-95,0) 10,0-14,0 (7,5-16,5)		•

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.00

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WPP 001/4 MB 5.7 v 15

2. Edition

En

PES 6 A 90 D 410 RS 2596 Komb.-Nr. 9 400 085 229 RQV 300-1400 AB 1146-2 L

supersedes 9 • 85
company: Daimler-Benz
OM 352 A
engine. 127 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	lioko ((1,95-2,15)	mm (from BDC);	KW = 9	U-12,0 mm	
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1400	12,8+0,1	8,1-8,2	0,3(0,5)			
300	8,9-9,1	1,3-1,7	0,25(0,45)		
						İ
			1		Í	1

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	rev/min	Control rod (16	Intermedial Degree of deflection	e rated sp	Control rod	Lower rated Degree of deflection	speed	Control rod	Sliding s	ileeve travel
	rod travel mm 2		of control	rev/min 5	mm 4	of control lever	rev/min 8	mm 3	rev/min 10	mm 11
max.	1400	15,2-17,8	-	\-	-	ca. 16	100 300	min.10,5 8,9-9,1		0,7-1,2 2,7-3,0
ca. 64	11,8 4,0 1800	1585-1615					i .	800=2,0	775 950 1460	4,1-4,6 5,2-5,5 8,5
		1.0	<u> </u>			<u>3</u>				

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roi Test oil ten rev/min	d stop np 40°C (104°F) 2	Rotational-speed (2b) limitation intermediate speed	high idle s	very characteristics (5a)	idle switchir	fuel delivery 6 ng point cm³/1000 strokes	Torque- travel	Control (5) Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1400	0,5 bar 81,0-82,0 (79,0-84,0)	1440-1450*	LDA 500	0,5 bar 76,5-78,5 (73,5-79,5)	100	73,0-83,0 (70,0-86,0) =14,8-15,2 mm RW	500 1050	12,8+0, 13,8+0, 13,5+0, 12,9+0,
			LDA 500	0 bar 62,0-64,0				
			200	(60,0-66,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

MB 5,7 v 15

-2-

	 - ····	T	
Pump/governor	Setting	Measurement	diminution . Control rod travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 ARS 2596 +RQVAB 1146-2 L	0,50	0 0,33 0,23	13,8-13,9 12,5-12,6 13,5-13,6 12,5-12,8

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

D17

WPP 001/4 KHD 12,7 p1 2. Edition

PE8A95D 410 LS 2608

RO 300/1250 AB 929 L

supersedes 9.84

Komb.- Nr. 0 400 648 140

company: KHD

1-8-7-2-6-5-4-3 je $45^{\circ} \div 0.5^{\circ} (\div 0.75^{\circ})$

F8L413 F engine: 157 kW/2500min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(1.95-2.15)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1250	9,3-9	4 8,6-8,8	0,35(0,6)		
300	6,4-6,6	1,2-1,8	0,35(0,5	5)		
	ĺ					
Company of the Compan		· ·				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

PRG che	Control rod travel	Full-load s Setting po rev/min	•	•	rev/min	Idle spec Setting p	Control rod travel	Test spe		Torque o	Control rod (3) travel mm
600	15,6-16,4	600	16,0		1295-1310 1345-1375	300	6,5	100 300 410-	min.8,0 6,4-6,6 450 =2,0	650 945	9,3-9,4 9,7-9,8 9,5-9,7 9,3-9,6

Torque control travel on flyweight assembly dimension a =

1295-1310 min Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	2	Control rod stop	<u>3</u>	Fuel deliv	ery characteristics	3 b	Starting f	. —
rev/min 1	cm ³ /-1000 strokes 2		rev/min 3		rev/min 4	cm³/-1000 strokes 5		rev/min 6	Control rod travel cm ² /1000 strokes:/mm 7
1250	85,5-87,5 (83,5-89,5)		-		750	78,5-81,5 (76,0-84,0)		-	-

Checking values in brackets

7.86

BOSCH

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 5,6 a 1

PES 6 A 90 D 410 RS 2673 Komb.-Nr. 9 400 085 220

RQV 300-1425 AB 740-3 L

supersedes

1. Edition

Daimler-Benz OM 352

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,15-2,25

mm (from BDC) (2.10-2.30)

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm³/100 strokes 3	100 strokes 4	ភាកា 2	cm ³ /100 strokes 3	mm 6
1400	13,7+0,1	10,4-10,5	0,3(0,5)			
300	6,6-6,8	1,2-1,6	0,25(0,45)		
	-					

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated :	speed	•		Intermediate	p rated sp	eed	Lower rated	speed		Clidian	la ave da avel
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod travel mm rov/min 3	(1a) (2a)	Degree of deflection of control lever	rev/min 5	Control sod travel mm 4	Degree of deflection of control lever 7	rev!min 8	Control rod travel mm 3	rev/min	mm
max. ca. 62			55 30	-	· <u>-</u>	-	ca. 12 370-520 ③	300 660-	min.7,9 6,6-6,8 720= 2,0 max.1,0	-	-

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		intermediate speed	high idle s		idle switchi	ng point	Torque- travel	Control rod
100//////	Cm-/1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
!	2	3	4	5	6	7	8	9
1400	103,5-104,5 (101,0-107,0)		-	•	100	min.19,0 mm RW	-	

Chucking values in brackets

* 1 mm less control rod travel than col. 2

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WPP 001/4 MB 5,6 a

1. Edition

PES 6 A 90 D 410 RS 2673

and Governors

RQV 300-1425 AB 740-4 L

Komb.-Nr. 9 400 085 235

supersedes company Daimler-Benz OM 352-0 engine: 88 kW

estoil-ISO 4113

300

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

1,2-1,6

A. Fuel Injection Pump Settings 2,15-2,25

6,6-6,8

Fort closing at pro-	SHOKE	2.10-2.30)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes	mm 2	cm ³ /100 strokes 3	mm 6
1400	13,2+0,1	9,8-9,9	0,3(0,5)			
1			7			

0,25(0,45)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	eed	Lower rated	speed		Cuidin	
deflection of control	rev/min Control rod travel		(B)	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Silding s	leeve travel
lever	u)m	rev/min	(2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
	2	3		4	5	6	7	8	9	10	11
max.	1420	15,2-17	,8	-	٠-	-	ca. 12		min.7,9 6,6-6,8	-	-
ca. 62		1445-14						660-7	720= 2,0		
	4,0						270 500	900	max.1,0		
	1750	0-1,	U				370-520				
							3a				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 2b limitation intermediate speed			Starting Idle switching		Torque- travel	control (5)
rev/min	cm³/1000 strokes	rev/min 40	revimin	cm ³ /1000 strokes	tev/min	cm ³ /1000 strokes	rev/min	travei mm
1	2	3	4	5	6	7	8	9
1400	97,5-98,5 (95,5-100,5)	1445-1455*	-	•	100	min.19,0 mm RW	-	•

Checking values in brackets

* 1 mm less control rod travel than col. 2

40

WPP 001/4 FOR 4,4 a 1

1. Edition

PES 4 A 95 D 410 RS 2699 Komb.-Nr. 9 400 085 287 RS 350/1400 A2B 2149-2 L

tion tost tubing

company FTO 4,4 L

Values apply to fuel injection test tubing 1 680 750 008

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Purnp Settings

Port closing at prestroke

3,25-3,25 (3,10-3,30)

mm (from BDC)

Rotational speed	Control rod travel	Fuel de ivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm/100 strokes 3	cm ¹ / 100 strokes 4	mm 2	cm 1/100 strokes	ınm 6
1400	11,1+0,1	8,1-8,3	0,35 (0,6)			
350	6,4-6,6	0,8-1,2	0,35 (0,55			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm	rev/min Control rod travel mm rev/min	Intermed	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm 9	3 To	rque control Control rod travel mm
loose	800 x = 5	0,3-1,0 5,5	-	-	-	FH ca.27	350 300	6,5 7,2-7,8	1400 500 1000	11,1-11,2 12,4-12,5 12,0-12,2
FH max. VHca.65		1440-1450 1525-1565 0,3-1,7					450 600 1350	7,2-7,8 3,7-4,5 max.3,7 max.2,5	1200	11,4-11,7

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ili-load stop	6 Rotational- speed limitat		uel delivery haracteristics	Starting fuel delivery 5		4a Idle stop	
rev/min	emp 40°C (104°F) cm ³ /1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ¹ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm
1400	80,5-82,5 (78,5-84,5)	1440-1450*	500	83,0-86,0 (80,5-88,5)	100	108,0-118, = 19,0- 21,0 mm R		-
			1000	88,0-91,0 (85,5-93,5)		21,0 mm N		

Checking values in brackets

* 1 mm less control rod travel than col 2

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WPP 001/4 DAF 6,2 p 1

2. Edition

PES 6 A 95 D 320 RS 2693 Z Komb.-Nr. 0 400 846 537

RQ 300/1300 AB 1204 R

supersedes 10.85 DAF company: **DNS 620** engine. 150 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC) RW = 7.5-10.5 mm

		1,33-2,137		 	-10,0 11111	
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,2+0,1	8,7-8,9	0,35(0,6)			
300	6,4-6,6	0,7-1,1	0,35(0,55)		
	!		L			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check	Full-load speed re Setting point		Idle speed regula Setting point	ation Test specifications (5)	Torque control
Control rod travel mm	Control rod travel rev/min mrn 3	Control rod travel	Control rod travel rev/min mm 7 8	Control rod travel rev/min mm 9 10	Control rod travel mm
820 19,2-20,8 VH = max. 46°	820 20,0	10,6 1343-1358 4,0 1425-1450		100 min.7,3 300 6,1-6,3 520-560=2,0	1290 11,6-11,7 850 13,2-13,3 965 12,7-12,9 1060 12,2-12,4

on flyweight assembly dimension a = 0,57

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	telivery on control lever mp. 40°C (104°F)	2	Control rod stop 3a	Fuel deliv	ery characteristics	3 b	Starting f	uel delivery d Control
rev/min	cm³/-1000 strokes 2		rev/min 3	rev/min 4	cm ³ /-1000 strokes 5		rev/min 6	contravel cm ³ /1000 strokes:/ mm 7
LDA 850	0,7 bar 87,0-89,0 (85,0-91,0)		-	LDA 1290 LDA 600	0,7 bar 85,0-87,0 (82,5-89,5) 0 bar 65,0-67,0 (63,0-69,0)		100 300	125,0-135,0 (122,0-138,0) 7,0-11,0 (4,5-13,5)

Checking values in brackets

DAF 6,2 p 1

1 - 2 -

_			
Test	at	n	-

600

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 ARS 2693 Z + AB 1204 R	0,7	0 0,29 0,25	12,2-12,3 11,2-11,4 12,0-12,1 11,5-11,7

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 MWM 5,9 c 1

1. Edition

PES 6 A 90 D 320 RS 2701 RSV 350-1150 A 2 B 2097-2 R Komb.-Nr. 9 400 085 286

supersedes _

company MMM

D 229-6 engine

110 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,65-2,75 (2,60-2,80)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre tensioning (forque control valve)
rev/min	mm (2)	cm1/100 strokes 3	100 strokes	mm 2	cm/100 strokes	mm 6
1150	9,2-9,3	6,2-6,3	0,3 (0,5)			
350	5,9-6,1	1,1-1,5	0,25(0,45)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	er rated speed	rev/min	Intermediate rated speed			4		rated speed	IV 9)	- 4	
Degree of deflection of control lever	travel mm	travel mm rev/min				Control- lever deflection	rev/min	Control rod travel mm	tev/min	Control rod travel mm	
1	2	3	4	5	6	in degrees 7	8	9	10	11	
loose	800	0,3-1,0	-	-	-		350	5,5	1150	9,2-9,3	
	x = 4	, 25	•				100	min. 19,0		9,8-9,9	
ca. 46	8,2 4,0 1400	1190-1200 1230-1260 0,3-1,7					350 570-63	5,9-6,1 0 = 2,0	800	9,4-9,7	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

9	ull-load stop	6 Rotational- speed limitat	11301	uel delivery naracteristics	Starting !	fuel delivery 5	(4a) Id	le stop
rev/min	emp 40°C (104°F) cm//1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ¹ /1000 strokes 5	rev/min	cm ¹ /1000 strokes	rev/min 8	Control rod travel mm
1150	62,0-63,0 (59,5-65,5)	1190-1200*	500	53,5-55,5 (51,0-58,0)	100	19,0-21,0 mm RW	-	-
			800	59,5-61,5 (57,0-64,0)	350	10,5-14,5 (8,0-17,0		

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz. Ausrustung. § 1980 by Robert Bosch GmbH. Postfach 50. D. 7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH.

WPP 001/4 MWM 5,9 e

1. Edition

PES 6 A 90 D 320 RS 2718

RSV 350-1500 A0B 2207-1 R

Komb.-Nr. 9 400 085 273

supersedes = MWM company TD 229-6

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,65-2,85)

mm (from BDC)RW = 9,0-12,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque control valve)
rev/min 1	mm 2	cm/100 strokes 3	cm ¹ / 100 strokes 4	mm 2	cm //100 strokes 3	mm 6
1500	10,9+0,1	8,3-8,4	0,3 (0,5)			
350	5,9-6,1	1,0-1,4	0,25(0,45)			
Port clos	ing diffe od travel	rence = 4,0-5, 2 mm	D° mm betw	een contro	l-rod travel 9	mm and

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	er rated speed		Intermediate rated speed			(4)	Lower	3 Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control- lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
<u> </u>	2	3	4	5	6	<u> </u>	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 22	350	5,5	1500	10,9-11,0
	X =	3,5					100 350	min.19,0 5,9-6,1	500 400	10,9-11,1 12,1-12,7
ca. 62	9,9 4,0 1700	1540-1550 1600-1630 0,3-1,7					430-49		400	12,1-12,/

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull load stop	6 Rotational speed limitat		uel delivery naracteristics	Starting f	uel delivery 5	4a Idle stop	
rev/min	emp 40°C (104°F) cm ¹ /1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm
1500	83,0-84,0 (81,0-86,0)	1540-1550*	500	70,0-72,0 (67,5-74,5)	100 350	19,0-21,0 mm RW 9,5-13,5 (7,5-15,5		-

Checking values in brackets

* 1 mm less control rod travel than col 2

WPP 001/4 FOR 6,6 h

1. Edition

PES 6 A 95 D 410 RS 2722

ROV 350-1300 AB 1200 L

supersedes

Komb.-Nr. 9 400 085 265

Values only apply to test nozzle-and-holder assembly 1 688 901 017 and fuel-injection test tubing 1 680 750 015

company: FTO engine 6,6 1 TC 160 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,15,3,25 (3,10-3,30) Port closing at prestroke mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	10,3+0,1	7,7-7,9	0,35 (0,6)		
350	4,9-5,1	1,1-1,5	0,35(0,55)		
				İ		

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated	speed		Intermediat	e rated sp	eed	Lower rated	speed		Slidings	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod (text) travel mm rev/min (2)	of control	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel		mm (1)
1	2	3	4	5	6	7	8	9	10	11
max.	1340	15,2-17,8	-	· -	-	ca. 12	100	min. 7,5		1,2-1,5
ca. 62	9,3	1360-1370 1450-1480					490-			3,0-3,3 5,8-6,2 8,6
	1600	0 - 1,0		1		370-440	į			
						3 a				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Control-rod stop Test oil temp 40°C (104°F) 2		timitation intermediate speed	Fuel delivery characteristics 5a high idle speed 5b		Starting Idle switchir	• •	Torque- travel	Control cod
rev/min	cm ³ /1000 strokes	rev/min 40	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
LDA 1300	0,7 bar 77,0-79,0 (75,0-81,0)	1360-1370 *	LDA 600 LDA	0,7 bar 61,0-64,0 (60,0-65,0) 0 bar	100	150,0-170,0	1	-
			500	53,0-55,0 (51,0-57,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.86

Geschäftsbereich KM. Kundendienst. Kfz-Ausrustung C by Robert Bosch GmbH. D-7 Stuttgert 1, Postfach 50 Printed in the Federal Republic of Germany Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH

Test at n =

500 rev/min decreasing pressure – in bar gauge pressure

FOR 6,6 h - 2 -

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 ARS 2722 +RQV AB 1220 L	0,70	0 0,45 0,36	10,3-10,4 9,2-9,3 9,9-10,1 9,5-9,6

Notes

(1) when n =

rev/min and gauge pressure =

bar (" maximum full-toad control rod travel)

40

WPP 001/4 DEE 7,6 e 1

2. Edition

En

PES 6 A 100 D 410 RS 3028 Komb.-Nr. 0 401 276 047

RSV 400-1100 A 2 B 2010 DL

supersedes 12.83
company John Deere
engine 6466 A
Traktor 4640

Values apply to fuel-injection test tubing 1 680 750 008

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,95-2,05 (1,90-2,10)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre tensioning (torque control valve)
rev/min	mm (2)	cmi/100 strokes	cm ¹ / 100 strokes	mm	cm ¹ /100 strokes	mm
1	2	3	4	2	3	6
1100	11,1+0,1	11,1-11,3	0,3 (0,6)			
400	6,3-6,5	1,2-1,8	0,4 (0,55)			
			}			İ
	1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control tever	Control rod travel mm	rev/min Contro! rod travel mm rev/min 3	Interm	ediate rate	d speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm	11.57	rque control Control rod travel mm
loose	800 x =	0,3-1,0	-		-	ca.19	400 100	6,3 19,0-21,0	750 1100	11,9 11,1
ca,43	1150 1200	10,1 4,8					500 530-590	9,9 = 2,0		

The numbers denote the sequence of the (6.2)s

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational- speed limitat	speed limitat Characteristics			fuel delivery 5	4a) tdle stop		
rev/min	emp 40°C (104°F)	Note changed to) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm*/1000 strokes	@v/min	Control rod travel mm	
LDA 1100	1,2 bar 111,0-113,0 (108,0-116,0)	1145-1155*	LDA 750 LDA 500	1,2 bar 119,5-122,5 (116,5-125,5) 0 bar 77,0-81,0 (74,0-84,0)	 	175,0-195,0 12,0-18,0 27,0-33,0			

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

- -

DEE 7,6 e 1

- 2 -

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

J 00			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6ARS3028 + RSVA2B2010DL	0,38		11,65 - 11,75
+ KSVAZBZUTUUL		0,17	10,3 - 10,7

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

40

WPP 001/4 DEE 7,6 e 2

1. Edition

PES 6 A 100 D 410 RS 3028 Komb.-Nr. 9 400 230 042

RSV 425-1100 A2B 2159 L

supersedes-

company John Deere

_e 6466 A 4650 Row Cropper

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Fort closing at prestroke

Testoil-ISO 4113

1,95-2,05 (1,90-2,10)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre tensioning (torque-control valve)
rev/min 1	mm 2	cm ¹ /100 strokes	cm ¹ / 100 strokes 4	mm 2	cm/100 strokes	mm 6
1100	11,1+0,1	11,3-11,5	0,3 (0,6)			
425	6,9-7,1	2,4-2,8	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm	rev/min Control rod travel mm rev/min 3	Interme	diate rated	speed	Control- lever deflection in degrees	Lower	rated speed Control rod travel mm	3 To	rque control Control rod travel mm
loose	800 x =	0,3-1,0	•	-	-	ca. 19	425 100	6,5 min.19,0	1000	11,1-11,2 12,9-13,2
ca. 43	10,1 4,0 1300	1145-1155 1190-1220 0,3-1,7					425 460-520	6,9-7,1 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

6	ull-load stop emp 40°C (104°F)	6 Rotational- speed limitat	speed limitat Caracteristics			fuel delivery 5	4a Id	le stop
rev/min	cm ¹ /1000 strokes	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ¹ /1000 strokes 7	rev/min 8	Control ro travel mm
LDA 1100	0,8 bar 112,5-114,5 111,0-116,0)	1145-1155*	LDA 750 LDA 500	0,8 bar 131,0-136,0 (129,0-138,0) 0 bar 86,0-90,0 (84,0-92,0)	100 400 190	165,0-185 24,0-28,0 35,0-45,0)	

Checking values in brackets

* 1 mm less control rod travel than col 2

6.86

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Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

DEE 7,6 e 2

- 2 -

500					
Pump/governor	Setting	Measurement	diminution Control rod travel- difference		
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .		
PES 6 ARS 3028 + RSVA2B 2159 L	0,10	0,30	11,1-11,2 13,0-13,4		

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 DEE 7,6 f 2. Edition

En

PES 6 A 100 D 410 RS 3038

Komb.-Nr. 9 400 230 032

RSV 400-1100 A 2 B 2120 L

supersedes 2.84

John Deere

6 466 AT-05

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 1,95-2,05 Port closing at prestroke (1,90-2,10) mm

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ¹ /100 strokes	cm ¹ / 100 strokes	mm	cm ¹ /100 strokes	mm
<u> </u>		3	14	 	3	6
1100	10,8+0,1	10,8-11,0	0,3	<u></u>		
400	6,6-6,8	1,3-1,7	0,3			
Port clo	sing mark cy	l. 1 : 15° af	er port cl	os ina		

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

11 1	r rated speed Control rod travel mm		Intermed	iate rated	speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm	3 To	rque control Control rod travel mm 11
loose	800	0,3-1,0	-	•	-	ca. 17	400 100	6,1 min. 19,0	1100 650	10,8-10,9 11,8-12,1
ca. 40	9,8 4,0 1300	1145-1155 1205-1235 0,3-1,7		,			400 480-540 850	6,6		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	6 Rotational- speed limitat 3a Fuel delivery characteristics			Starting f	uel delivery 5	4a) Idle stop		
chan		Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm/1000 strokes 7	rev/min 8	Control rod travel mm	
1100	108,0-110,0 (105,0-113,0)	1145-1155*	650	115,5-118,5 (112,5-121,5)	1200	idle speed	RW :	•	

Checking values in brackets

* 1 mm less control rod travel than col 2

7.86

Geschaftsberaich KH. Kundendienst. Kfz-Ausrusiung. ₹ 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH.

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 2,5 c

En

1. Edition

PES 5 M 55 C 320 RS 158 RSF 340/2300 M 64-1

0 400 075 980

1- 2- 4 - 5 - 3 0-72-144-216-288

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersèdes_

company Daimler-Benz

engine OM 602 A

92 kW

Note: Before starting testing, observe the

A. Fuel Injection Pump Settings

Port closing at prestroke

2,20-2,30 (2,15-2,35) mm (from BDC)

important instruc-Control rod travel tions on the reverse.

RW = 20,0-22,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pré-tensioning (compensating valve)
rev/min	mm	cm³/100 strokes	cm³/100 strokes	mm	cm³/100 strokes	mın
1	2	3	4	2	3	6
1000	13,9+0,1	5,1-5,2	0,25 (0,3)			
315	5,3-5,5	0,5-0,6	0,1 (0,15)			
1600			0,25 (0,3)			
2200			0,25 (0,3)			

Set uniform delivery according to the values in

Checking values in brackets

B. Governor Settings

Lower rated speed			Upper rated	d speed		Variations in co	introl rod trav	ret
Degree of deflection of control	Control rod Rotational speed travel		Degree of deflection of control	Control rod travel	Rotational speed		Rotational speed	Control rod travel
lever	mm	rev/min	lever	mm	rev/min		ten/wiu	mm
1	2	3	4	5	6	7	8	9
2	min.8,0 5,3-5,5 4,2-4,4 - 2,5	315		7 8,1-8,9 9 10 0-1,0	2500	(12) (13) (14) (6)	1600	min. 20,1 13,2-13,4 12,3-12,5

C. Settings for Fuel Injection Pump with Governor Mounted

Full-load o	Jelivery (19)	Full-load speed Ba Variations in fuel 17 St regulation Gelivery			Starting fuel delivery			
Test oil te	mp 40°C (104°F)			l ®		1	Difference	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	cm³/1000 strokes	
1	2	3	4	5	6	7	8 ·	
2200	48,5-50,5	2500*	1600	50,0-51,5	100	min. 52,0	6,0	2a)
	(47,5-51,5)			(49,0-52,5)	315	5,0-6,0 (4,5-9,0)	1,0 (1,5)	_
			1000	51,0-52,0 (50,0-53,0)	2500	29,0-33,0	2,5	15)
						(28,0-34,0)	/2 01	16)

Checking values in brackets

*ca.4,0 less control rod travel than in Column 2

1. Testing with ALDA

Point	min ⁻¹	cm ₃ /1000 strokes	Control-rod travel	Pressure absolute
18	1000	51.0-52.0 (50.0-53.0)	13.9-14.0	1850 mbar
18a	1000	33.0-34.0 (32.0-35.0)	9.9-10.1	1050 mbar
19	2200	48.5-50.5 (47.5-51.5)	12.3-12.5	1850 mbar
12a	100	min. 52.0	min. 20.1	-
15	290	5.5-6.5 (5.0-9.5)	5.3-5.5	-

- 2. ** Checking of idle-auxiliary spring; setting at n = 380 1/min control-rod travel (4.1-4.5 mm).
- 3. Setting the idle control-lever position:

At 1000 1/min, control-rod travel 1.7-1.8 mm.

4. Checking the idle-auxiliary spring cutoff

Control-lever position 49°, after switchover point (from starting cam) up to 1000 $1/\min$ max. 0.2 mm control-rod travel deduction permissible. Control-lever position 46.5°, after switchover point (from starting cam) control-rod travel deduction must be greater than 0.2 mm.

5. Checking the pneumatic shutoff box

Control lever up against idle stop. At $n=315 \text{ min}^{-1}$ and pu=450 mbar control rod must move briskly to control-rod travel = 0 mm.

- 6. Overflow valve 1 469 990 351.
- 7. Start-of-delivery spacing (difference) between largest/smallest value 1° camshaft max.
- 8. FBG setting

FBG setting and locking according to start of delivery average of all cylinders, 19.5 ± 0.2 (0.3) degrees camshaft according to cyl. 1.

En

9. Checking the ELR servo magnet

- Control lever up against idle stop At n = 340 1/min, I = 1.8 A. control-rod travel = (12.4-13.8) mm, fuel delivery (41.0-49.0) ccm/1000 strokes.

Note:

If the measured delivery is more than 2.0 ccm/1000 strokes outside the checking tolerance - replace the servo magnet.

- Control lever up against full-load stop At n = 2950 1/min, I = 3 A (briefly), control-rod travel = 0-1.0 mm

Checking of starting: At n = 100 1/min, I = 1.8 A, delivery min. 52.0 ccm/1000 strokes.

10. Checking the intermediate control curve (control-lever position)

Control lever 30°, n = 1000 l/min, control-rod travel = 9.5-10.2 mm

11. RWG testing and setting with evaluation circuit R2-1.3 Receiving inspection Bring control lever up against full-load stop. On voltage stabilizer, set 13.5 V. Apply 1850 bar to ALDA. Operate at speed of 1000 1/min; a voltage of 3.23-3.31 (3.19-3.35) V must be indicated on digital voltmeter.

RWG setting At 1000 1/min set a delivery of 23.0-24.0 (22.0-25.0) ccm/1000 strokes with control lever. Move RWG until U = 2.095-2.105 is indicated. Tighten fastening screws to 1-2 Nm. Control lever to full-load stop - voltage 3.23-3.31 V must be obtained.

Festoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MWM 17,6 a 4. Edition

PE 12 P 100 520/5 RS 98 PE 12 P 100 A 500/5 RS 98

EP/RSUV 300-750 P5..320R

..300-1150 PO..324R,324DR

supersedes7.77

company: M W M

engine: D / TD 232 - 12

 $1 - 12 - 9 - 4 - 5 - 8 - 11 - 2 - 3 - 10 - 7 - 6 je 30^{\circ}$

Governor basic setting: control lever = 35°
All test specifications are valid for bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,0-2,1 Port closing at prestroke (1,95-2,15)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery 10 Ø cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery 9 Ø cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12	12,4 - 13,1	0,5	12	12,8 - 13,6	
	9	6,4 - 7,6		9	7,7 - 8,9	1
	15	17,8 - 19,5		15	16,8 - 18,5	
200	9	4,6- 5,8		9	5,7 - 6,9	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSUV .. P 5/ 320 R

Upper rated speed			Intermediate rated speed			4 Lowe	r rated spe	3 Torque control		
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
ca. 61	750 770	16,0 11,4	without auxiliary spri			ca.27	300	8,0	730	0
	790	6,4	Wichout	auxii	ialy spill	.9	100 300	19 - 21 7,7-8,3	400	0
5	770 800 860	10,4-12,3 4,0- 5,8 0,3- 1,0	with auxiliary spring				350 410	2,0-4,7 0 - 1	ł	1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop				Starting fuel delivery		5a Idle stop		
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 stŕokes` 7	rev/min 8	Control red travel mm
In acco	rdance with	nameplate of	govërr	or or pages 3	- 9		300	8,0
						,		

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

EP/RSUV .. P 0 / 324 R

(1) Upper	rated speed	j	Intermediate	e rated spe	eed	4 Low	er rated sp	eed	(3) To	rque control
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever		Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.65	1150 1200	16,0	without auxiliary spr			ca. 2	300	8,0	1100	0
	1220	9,8 7,1	Wichou	t auxi	iliaiy spi	19		19 - 21 7,7-8,3	500	0
⑤	1200 1250 1350	8,3-10,8 2,8-5,5 0,3-1,0	with a	uxilia	ary spring			2,8-5,2 0 - 1	350	1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational- speed limitat		el delivery aracteristics	Starting Idle	fuel delivery	(5a) Idi	e stop
Test oil temp 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note changed to rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min	Control rod travet mm 9
In acco	rdance with	nameplate of	gover	nor or pages :	- 9		300	8,0
			(6a)					

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

EP/RSUV .. P 0 / 324 DR

(1) Upper	rated speed		Intermediate	rated spe	ed	(4) Lowe	r rated sp	eed	(3) Tor	orque control	
Degree at deflection of control lever	rev!min	Confrol rod travel mm	Degree of deflection of control level	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
ca. 65	1150 1200 1220	16,0 · 9,8 7,1	without	without auxiliary spri			300 80 300	8,0 19 - 21		until	
5	1200 1250 1350	8,3-10,8 2,8-5,5 0,3-1,0	with a	uxilia	ry spring		380 500	7,7-8,3 2,8-5,2 0 - 1	reac	. · ·	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational- speed limitat		el delivery aracteristics	Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min cm³/1000 strokes rev/min cm³/1000 st		cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
In acc	prdance with	namenlate of	gover	nor or pages	3 - 9		200	0.0
21, 95.			30.0.	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			300	8,0
211 534							300	8,0

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel deliv	very characteristics	Starting Idle switchir		Intermed rotationa Torque • c	speed
rev/min	cm³/1000 strokes	rev/min	ten/wiu	cm ³ /1000 strokes	rev/min	cm³/1000 strokes		mm
1	2	3	4	5	6	7	8	

F 330 PS / 2500 min⁻¹
1250 92,0 - 94,0 1270

Testoil-ISO 4113

B'324 PS / 2500 min⁻¹
1250 92,0 - 94,0 1270

 $\frac{\text{B 324 PS } / 2500 \text{ min}^{-1}}{1250 92,0-94,0} 1270$

F 320 PS / 2300 min⁻¹
1150 90,0 - 92,0 1170

B'310 PS / 2300 min⁻¹ 1150 90,0 - 92,0 1170

B 310 PS / 2300 min⁻¹ 1150 90,0 - 92,0 1170

A 282 PS / 2300 min⁻¹
1185 84,0 - 86,0 1200

 $\frac{8'288 PS / 2100 min^{-1}}{1050 85,0-87,0} 1060$

 $\frac{8\ 288\ PS\ /\ 2100\ min^{-1}}{1050\ 85,0-87,0}$

 $\frac{A \ 262 \ PS \ / \ 2100 \ min^{-1}}{1080 \ 80,0-82,0} \ 1090$

F 288 PS / 2000 min⁻¹
1000 84,0 - 86,0 1010

B'276 PS / 2000 min⁻¹
1000 84,0 - 86,0 1010

engine po Full-load d Control-rod Test oil ten	elivery	Rotational-speed limitation	Fuel delin	very characteristics	Starting Idle switchir	•	Intermedi rotational Torque-c travel	speed
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

B 276 PS / 2000 min⁻¹ 84,0 - 86,0 1010 1000

Testoil-ISO 4113

A 252 PS / 2000 min⁻¹ 79,0 - 81,0 1030 1040

B 254 PS / 1800 min⁻¹ 83.0 - 85.0900 910

A'230 PS / 1800 min⁻¹ 900 83,0 - 85,0 910

A 230 PS / 1800 min⁻¹ 78.0 - 80.0930 940

B 216 PS / 1500 min⁻¹ 83,0 - 85,0750 760

A'196 PS / 1500 min⁻¹ 750 83.0 - 85.0760

A 196 PS / 1500 min⁻¹ 78,0 - 80,0

785

775

B'315 PS / 2300 min⁻¹ 90,0-92,01150 1170 Special output

D 286 PS / 1800 min⁻¹ 97.0 - 99.0900 910 Emergency power output

 $1800 \, \mathrm{min}^{-1}$ C 260 PS / 97,0 - 99,0910 Emergency power output

engine po Full-load d Control-ro Test oil ten	elivery	Rotational-speed limitation	Fuel deliv	rery characteristics	Starting Idle switchir	•	Intermed rotational Torque-c travel	speed
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7 _	В	

D 240 PS / 1500 min⁻¹

750 96,0 - 98,0 760

Emergency power output

Testoil-ISO 4113

C 218 PS / 1500 min⁻¹
750 96,0 - 98,0 760
Emergency power output

(i)

C. Settings for Fuel Injection Pump with Fitted Governor

engine po Full-load di Control-rod Test oil ten	elivery	Rotational-speed limitation	Fuel deliv	•	Starting Idle switchir	fuel delivery	intermedi rotational Torque-c travel	speed
tev/min	cm³/1000 strokes	rev/min	tea/wiu	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	ww
1	2	3	4	5	6	7	8	

F 420 PS / 2300 min⁻¹
1150 115,0 - 117,0 1170

Testoil-ISO 4113

B'414 PS / 2300 min⁻¹
1150 115,0 - 117,0 1170

B 414 PS / 2300 min⁻¹

1150 115,0 - 117,0 1170

A 376 PS / 2300 min⁻¹
1185 110,0 - 112,0 1200

B'384 PS / 2100 min⁻¹
1050 110,0 - 112,0 1060

B 384 PS / 2100 min⁻¹ 1050 110,0 - 112,0 1060

 $\frac{A 348 PS / 2100 min^{-1}}{1080 105,0 - 107,0} 1090$

F 384 PS / 2000 min⁻¹
1000 107,0 - 109,0 1010

B'368 PS / 2000 min⁻¹
1000 107,0 - 109,0 1010

B 368 PS / 2000 min⁻¹
1000 107,0 - 109,0 1010

A 334 PS / 2000 min⁻¹
1030 102,0 - 104,0 1040

B 336 PS / 1800 min⁻¹
900 106,0 - 108,0 910

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel deliv	very characteristics	Starting Idle switchin		Intermedi rotational Torque-c	speed
rev/min cm³/	1000 strokes	rev/min 3	rev/min	cm³/1000 strokes 5	rev/min	cm ³ /1000 strokes 7	travel rev/min 8	mm

A'306 PS / 1800 min⁻¹ 105,0 - 107,0 910 900 A 306 PS / 1800 min⁻¹

Testoil-ISO 4113

100,0 - 102,0930 940

B 284 PS / 1500 min⁻¹ 107.0 - 109.0760 750

A'258 PS / 1500 min⁻¹ 107.0 - 109.0760 750

A 258 PS / 1500 min⁻¹ 102.0 - 104.0775 785

D 375 PS / 1800 min⁻¹ 121,0 - 123,0 910 Emergency power output

C 340 PS / 1800 min⁻¹ 121,0 - 123,0 910 900 Emergency power output

D 315 PS / 1500 min⁻¹ 121,0 - 123,0 760 Emergency power output

C 286 PS / 1500 min⁻¹ 121,0 - 123,0 760 750 Emergency power output

engine po Full-load d Control-rod Test oil ten	elivery	Rotational speed limitation	Fuel deli	very characteristics	Starting Idle switchir	fuel delivery	intermed rotational Torque c	speed
rev/min	cm ³ /1000 strokes	rev/min	tea/win	cm³/1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	1	5	6	7	8	

B 417 PS / 1800 min⁻¹ 900 137,0 - 139,0 910 Testoil-ISO 4113

 $\frac{\text{A'378 PS} / 1800 \text{ min}^{-1}}{900 \quad 137,0 - 139,0} \quad 910$

 $\frac{A 378 PS / 1800 min^{-1}}{930 128,0 - 130,0} 940$

B 354 PS / 1500 min⁻¹
750 133,0 - 135,0 760

 $\frac{\text{A'321 PS} / 1500 \text{ min}^{-1}}{750 \quad 133,0 - 135,0} \quad 760$

 $\frac{A 321 PS / 1500 min^{-1}}{780 125,0 - 127,0} 790$

D 385 PS / 1500 min⁻¹

750 146,0 - 148,0 760
Emergency power output

C 350 PS / 1500 min⁻¹

750 146,0 - 148,0 760

Emergency power output

engine po Full-load de Control-rod Test oil ten	elivery	Rotational speed limitation	Fuel deliv	very characteristics	Starting Idle switchir		intermedi rotational Torque-c travel	speed
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

B 398 PS / 1800 min⁻¹ 900 137,0 - 139,0 910 Testoil-ISO 4113

A'359 PS / 1800 min⁻¹
900 137,0 - 139,0 910

A 359 PS / 1800 min⁻¹
930 130,0 - 132,0 940

B 339 PS / 1500 min⁻¹
750 135,0 - 137,0 760

A'306 PS / 1500 min⁻¹
750 135,0 - 137,0 760

A 306 PS / 1500 min⁻¹
780 128,0 - 130,0 790

D 355 PS / 1500 min⁻¹
750 142,0 - 144,0 760
Emergency power output

C 320 PS / 1500 min⁻¹
750 142,0 - 144,0 760
Emergency power output

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 IHC 9,4 a 1

1. Edition

PES 8 P 100 A 921/5 RS 286 Komb.-Nr. 0 402 0 8 036

ROV 325-1250 PA 274 KR

supersedes

IHC company **DVT 573 B**

engine

1-8-4-2-7-3-6-5

Values only apply to test nozzle-and-holder assembly 1 688 901 017 and fuel-injection test tubing 9 681 230 713

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

		<u> </u>		· · · · · · · · · · · · · · · · · · ·		
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes	Spring pre-tensioning (forque-control valve) mm
1250	9,6-9,7	10,9-11,1	0,4			
325	ca. 5,0	1,7-2,3	0,6			
 	•					

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated	speed			Intermediate rated speed			Lower rated	speed		Stidings	Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	(18) (28)	Degree of deflection of control lever	rev/min	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min	mm (1)	
1	2	3		4	5	6	7	8	9	10	11	
ca. 66	1320 1400 1520 1640	15,0-18 9,6-13 0-7, 0	,9	•			ca. 10	100 220 340 400 550 670	7,1-8,0 5,7-8,0 2,8-5,0 2,2-3,8 0-1,1	-	•	

Torque contro; travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Controt-ro Test oil ter rev/min		Rotational-speed ②b limitation intermediate speed rev/min ④	high idle s	very characteristics Sa peed Sb cm ³ /1000 strokes	Starting fuel delivery 6 Idle switching point rev/min cm3/1000 strokes		Torque travel	Control 5 Control rod travel mm
LDA 1250	0.8 bar 109,0-111,0 (107,0-113,0	3 1290-1300*)	LDA 900 LDA 800	5 0,8 bar 115,0-121,0 (113,0-123,0 0 bar 73,0-81,0 (71,0-83,0)		min. ∷%,0 17,0-23,0	900	9,6-9,7 10,1+0,2 9,8+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.50



IHC 9,4 a 1

. 2 -

Test at n	-	800
-----------	--------------	-----

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 8 P RS 286 +RQV PA 274 KR	0,1-0,16	0,80-0,87	Start of timing advance End of timing advance

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

=7/

En (2)

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DEE 7,6 a 1 3. Edition

PES 6 P 110 A 720 RS 361

US-RSV 400-1100 P 2/497

supersedes

Komb.-Nr. 9 400 231 108

John Deere company 6466 A

Use overflow valve 1 457 413 010

engine 161 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,75-2,85 (2,70-2,90)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuet delivery	Spring pre tensioning (to:que-control valve)
rev/min	mm 2	cm1/100 strokes	cm ¹ / 100 strokes	mm	cm /100 strokes	mm 6
1100	11,3+0,1	15,0-15,3	0,4(0,75)			
400	5,5-5,7	0,8-1,3	0, 45(0,75)		

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm		Intermed	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	(3) To	rque control Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.24	400 100 400	5,2 min.19,0 5,6-5,8	1100 950 700	11,0-11,1 11,0-11,2 11,5-11,7
ca.48	10,3 4,0 1350	1140-1150 1240-1270 0,3-1,7					510-670			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	6 Rotational speed limitat	11.24	iel delivery naracteristics	Starting f	luel delivery 5	4a Idle stop		
rev/min	emp 40°C (104°F) cm ¹ /1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ^y 1000 strokes	ev/min	Control rod travel rum 9	
	0,9 bar 149,5-152,5 147,0-155,0)	1140-1150*	LDA 950 LDA 500	0,9 bar 151,0-155,0 (148,0-158,0) 0 bar 119,5-123,5 (116,5-126,5)	100	160,0-180, 156,0-184	0 400 ,0)	5,6	

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test at n =

rev/min decreasing pressure - in bar gauge pressure

DEE 7,6 a 1

- 2 -

500			
Pump/governor	Setting	Measurement	diminution Control rod travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6PRS361 + US-RSVP2/497	0,38	0,24 0	11,25-11,35 10,40-10,80 10,20-10,40

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 CAT 10,5 g

1. Edition

PES 6 P 100 A 720 LS 502 Komb.-Nr. 9 400 087 344

RQV 350-1100 PA798-1

supersedee company Caterpillar

Values only apply to test nozzle-and-holder assembly

1 688 901 017 and fuel-injection_test tubing 1 680 750 008

engine 3306 DIT

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

stroke	(3.90-4.10)	mm (from BDC)			
Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
9,6-9,7	10,4-10,5	0,35(0,6)		†	
6,4-6,6	1,3-1,7	0,35(0,55)		
	Control rod travel mm 2 9,6-9,7	Control rod travel	Control rod travel	Control rod travel	Control rod travel

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed	·		Intermediate	rated sp	eed	Lower rated	speed		Stidiogo	toous traval
deflection of control	rev/min Control rod travel mm	Control rod travel mm rev/min	(3) (28)	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	leeve travel
1	2	3	_	4	5	6	7	8	9	10	11
max.	1150	15,2-17	8,	-	٠ ـ	-	ca.12	100	min. 8,0		1,3-1,5
ca. 64	4,0	1130-11 1185-12	15		:			350 500-	4,9-6,1 560 = 2,0	500 700 900	2,9-3,2 4,5-4,8 6,0-6,2
	1320	0-1,	U				370-440			1150	8,6
							3a				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 2b limitation intermediate speed	Fuel deliv	very characteristics 5a	idle			Control rod
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min	cm ³ /1900 strokes	rev/min	cm³/1000 strokes	rev/min	
1100	103,5-104,5 (101,0-107,0		500	105,5-109,5 (103,5-111,5		157,0-177,0 (153,0-181,0 4,9-5,1 mm RW)	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.86

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrustung C by Robert Bosch GmbH, D-7 Stuttgert 1, Postfach 50. Printed in the Faderal Republic of Germany Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH.

WPP 001/4 MAN 11,1 w 4

1. Edition

PES 6 P 120 A 720 LS 388

RQ 300/1100 PA 658-12

Mversedes_

Komb.-Nr. 0 402 046 317

company MAN

Values only apply to test nozzle-and-holder assembly

engine D 2566 MLUM/US MAN-Nr. 2-7699

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,0-3,1 Port closing at prestroke (2,95-3,15)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
750	10,1+0,1	14,5-14,7	0,5(0,9)			
300	5,8-6,0	1,2-1,8	0,8(1,2)			·
						,
				ļ		
				1		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	i	•	gulation		idle spec	_			Torque o	_
Control rod travel		int Control rod travel mm 4	Control rod travel	rev/min	Setting prev/min	Control rod travel		Control rod travel mm	rev/min 11	Control rod travel mm
19,2-20,8 /H = ca. 46°	600	20,0		1145-1160 1175-1205 0-1,0	300	5,9	300	min.7,4 5,8-6,0 00=2,0	750 1100 810 915	10,2-10,3 9,4-9,5 9,9-10,1 9,5-9,8

Torque-control travel on flyweight assembly dimension a =

0,30

1145-1160 min⁻¹ Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop Ga Fuel delivery characteristics		ery characteristics 3b	Starting f	
rev/min	cm³/-1000 strokes	rev/min 3	rev/min 4	cm³/-1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes:/ mm
LDA 750 1100 650	1,0 bar 145,0-147,0 (142,0-150,0) 153,0-157,0 (150,0-160,0) 138,0-144,0 (135,0-147,0)	-	LDA 500 LDA 500	0,35 bar 129,0-141,0 (126,0-144,0) 0 bar 111,0-113,0 (108,0-116,0)	100	225,0-245,0 (221,0-249,0)

Checking values in brackets

7.86

MAN 11,1 w 4

- 2 -

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 PLS 388 + RQPA 658-12	1,0	0 0,25 0,32	10,1-10,2 9,2-9,3 9,4-9,5 9,7-10,0

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 DAF 8,3 o 14
1. Edition

En

PE 6 P 100 A 720 RS 447 Komb.-Nr. 0 401 876 302

RSV 250-1200 P5A 509

company DAF DHT 825 engine 162 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

3,2-3,3 (3,15-3,35)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm (2)	cm ¹ /100 strokes	cm ¹ / 100 strokes 4	mm 2	cm ² /100 strokes	mm 6
1000	11,4+0,1	11,9-12,1	0,35 (0,6)			
250	5,2-5,4	0,8-1,2	0,35 (0,55)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection	Control rod travel	rev/min Control rod travel	Interme	diate rated	speed	Control- lever	Lower	rated speed Control rod travel	3 To	rque control Control rod travel
of control lever 1	mm 2	3 3	4	5	6	deflection in degrees 7	rev/min 8	mm 9	rev/min 10	mm 11
loose	800 X =	0,3-0,7 5,0	-	-	-	ca. 24	250 250	4,8 5,2-5,4	1000 400	11,6-11,7 11,6-11,8
ca. 58	4,0	1240-1250 1325-1355 0,3-1,4		,			560-62	0 = 2,0	300	11,9-12,4

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop oil temp 40°C (104°F) Rotational- speed limitat		(3a) Fr	uel delivery paracteristics	Starting lidle				
cm ¹ /1000 strokes 2	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm	
0,7 bar 118,5-120,5 116,5-122,5)			0 bar 92,5-96,5 90,0-99,0)	100 250	(206,0-234	,0)	-	
	mp 40°C (104°F) cm*/1000 strokes 2 0,7 bar 118,5-120,5	speed limitat Note changed to) rev/min 3 0,7 bar 118,5-120,5	speed limitat Note changed to) rev/min 3	speed limitat Note changed to) rev/min 2 characteristics rev/min 2 cm³/1000 strokes 2	speed limitat Note changed to) rev/min 3 characteristics lidle 10,7 bar 1240-1250* LDA 0 bar 1000 strokes 100	speed limital Note changed to) rev/min 2 1240-1250* LDA 0 bar 100 210,0-230 (206,0-234 16.5-122.5)	speed limitat Note changed to) rev/min 3 characteristics Idle Cm ³ /1000 strokes Cm ³	

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. £ 1980 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgart t. Printed in the Federal Republic of Germany Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH.

Test at n =

600

rev/min decreasing pressure - in bar gauge pressure

DAF 8,3 o 14

-2-

Pump/gavernor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE6PRS 447 +RSVP5A 509	0,70	0 0,32 0,23	11,4-11,5 10,4-10,5 11,1-11,2 10,2-10,7

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

WPP 001/4 MAN 11.9 a 14

1. Edition

PES 6 P 120 A 720/3 LS 470-2 RQ 300/1100 PA 658-21 Komb.-Nr. 0 402 036 055 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067 supersedes company MAN

engine: D 2866 LUH 243 kW/2200 min⁻¹

MAN-Nr. 2-7711

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,8-2,9 mm (from BDC) Cyl. 6 Port closing at prestroke (2.75 - 2.95)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	11.3+0.1	20.5-20.7	0,5 (0,9)			
300	4,9-5,1	1,2-1,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider ck	Full-load Setting p	•	-	cifications (4)	Idle spe	•		cifications (5)	Torque	control (3)
rev/min	Control rod travei mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel	rev/min 9	Control rod	rev/min	Control rod (travel
600	19,2-20,8	600	20,0		1145-1160 1185-1215	300	5,0	100 300	min. 6,5 4,9-5,1	750 1100	11,6-11,7
VH	= max. 46°	•		1300					90 = 2,0	925	11,1-11,2 11,3-11,4

Torque-control travel on flyweight assembly dimension a = 0,20 mm

1145-1160 min-1 Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3	Fuel delivery characteristics 3b		Starting t	. —
rev/min 1	cm ³ /-1000 strokes	rev/min 3	rev/min	cm³/-1000 strokes	rev/min 6	Control rod travel cm ³ /1000 strokes:/ mm
LDA 750	1,0 bar 205,0-207,0 (202,0-210,0)	-	LDA 500	0,44 bar 182,0-190,0 (179,0-193,0)	100	225,0-245,0 (221,0-249,0)
1100	213,0-217,0 (210,0-220,0)		LDA 500	0 bar 130,0-132,0 (127,0-135,0)		

Checking values in brackets

4.86

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

MAN 11,9 a 14

2 -

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6PLS 470-2 +RQPA 658-21	1,0	0 0,23 0,44	11,3-11,4 9,0-9,1 9,3-9,4 10,6-10,9

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 10,0 e 2. Edition

PE 5 P 110 A 720 RS 479 Komb.-Nr. 9 400 087 308 RQ 300/1050 PA 718-1

supersedes 10.85

Daimler-Benz OM 355-5 A

engine.

170.0 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3,30-3,50)

mm (from BDC)

Cyl.1; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	12,2+0,1	16,1 - 16,3	0,4 (0,75)		
300	6,4-6,6	1,1 - 1,6	0,45(0,75)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che rev/min 1	Control rod travel	Full-load Setting po rev/min 3	-	-	cifications (4) rev/min 6	Idle spec Getting p rev/min 7	Control rod travel		cifications 5 Control rod travel mm	Torque (Control rod (3)
600 VH =	19,2-20,8 49°	600	20,0	· -	1095-1110 1160-1180 0-1,0	300	6,5	100 300 380-	6,4- 6,6	600	12,2-12,3 13,1-13,2 12,8-13,0
	ontrol travel ght assembly dimen		0,35	mm	Spe	ed regula	tion: At	095 -	1110 min	-1	1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	telivery on control lever pp. 40°C (104°F)	Control rod stop	3	Fuel deliv	ery characteristics	Starting f	uel delivery
rev/min 1	cm ³ /-1000 strokes	rev/min		rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm ³ /1000 strokes://mm
LDA 1050	0,7 bar 161,0 - 163,0 (158,0 - 166,0)	-		LDA 600 LDA 00 LDA 500	0,7 bar 177,0 - 181,0 (174,0 - 184,0) 0,7 bar 174,0 - 178,0 (171,0 - 181,0) 0 bar 112,5 - 115,5 (110,0 - 118,0)	100	150,0 - 170,0

Checking values in brackets

7.86

Testatn = 500	rev/min decreasing pressure - ii	n bar gauge pressure	MB 10,0 e		
Pump/governor	Setting Gauge pressure = bai	Measurement Gauge pressure = bar	Control rod travel difference		
PE 5 PRS 479 + RQPA 718-1	0,70	0 0,40 0,25	13,1 - 13,2 10,3 - 10,4 12,4 - 12,5 11,1 - 11,3		

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 VOL 7.1 b1

1. Edition

PE 6 P 110 A 320 RS 494 RQV 300-1100 PA 435-1 Komb.-Nr. 0 401 846 515

supersedes...

company: VOIVO

engine: TD 71 G 147 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,5+0,1	9,8-10,0	0,4(0,8			
300	4,6-4,8	1,2- 1,6	0,3(0,6)		
		·]	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed			Intermediate	rated sp	eed	Lower rated	speed	•	Slidings	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min 3	(B)	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min	mm 11
max. ca. 64	1200 9,5 4,0 1300	15,2-17 1140-115 1210-124 0- 1	00	-	· -	-	ca. 11 350-510	300 4	in.6,1 ,6-4,8	250 530 820 1100	1,0-1,2 3,3-3,5 5,0-5,2 7,6

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil te		limitation intermediate speed	high idle s	very characteristics (5a)	Starting Idle switchin		Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 49	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm .
1	2	3	4	5	6	7	8	9
LDA	0,7 bar	1140-1150*	LDA	0 bar	100	150,0-190,0	-	-
700	98,0-100,0 (95,0-103,0)		700	78,0-81,0 75,0-84,0)	300	12,0- 16,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.86

Geschäftsbereich KH. Kundendienst. Kfz-Auswüstung C by Robert Bosch GmbH, D-7 Stuttgart 1, flostfach 50. Printed in the Federal Republic of Germany. Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH.

Testatn =

rev/min decreasing pressure - in bar gauge pressure 500

VOL 7,1 b1

- 2 -

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mrา (1)
PE 6 P RS 494 + RQVPA 435-1	0,70	0 0,34 0,23	10,5-10,6 9,5-9,6 10,3-10,4 9,6-9,8

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 7,1 b2

1. Edition

PE 6 P 110 A 320 RS 494 RQV 300-1100 PA 435-2

Komb.-Nr. 0 401 846 516

supersedes-

company: VOIVO

engine: TD 71 G 136 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2.95-3.15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,2+0,1	9,2-9,4	0,4(0,8)			
300	4,6-4,8	1,2-1,6	0,3(0,6)			
	·	·				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed			Intermediate	rated sp	eed	Lower rated	speed	_	Sliding o	loove travel
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3		Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min 8	Control rod travel mm 3	rev/min	mm
max. ca. 64	1200 9,2 4,0 1300	15,2-17 1140-11 1200-12 0- 1	50 30	-	į	-	ca. 11 350-510	300 4	in.6,1 ,6-4,8		1,0-1,2 3,3-3,5 5,0-5,2 7,6

Torque control travel a = _ m

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		Rotational-speed 2b limitation intermediate speed	Fuel deliv	rery characteristics (5a)	Starting Idle switching	, 0	Torque- travel	control 5
rev/min	cm³/1000 strokes .	rev/min 48	rev/min	cm ³ /1000 atrokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
LDA 700	0,7 bar 92,0-94,0 (89,0-97,0)	1140-1150*	LDA 700	0 bar 78,0-81,0 (75,0-84,0)	100 300	150,0-190,0 12,0- 16,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.86



VOL 7,1 b2

- 2 -

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel-
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 PRS 494 +RQVPA 435-1	0,70	0 0,29 0,23	10,2-10,3 9,5- 9,6 10,0-10,1 9,6- 9,8

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 7,1 b

1. Edition

E

PE 6 P 110 A 320 RS 494 RQV 300-1200 PA 435-3 Komb.-Nr. 0 401 846 517

supersedes

company: VOIVO

engine: TD 71 GA

157 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,0-3,1 Port closing at prestroke (2,95-3,15) mm (from 8DC)

Rotational speed	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
700	10,9+0,1	10,7-10,9	0,4(0,8)	3	6
300	4,6-4,8	1,2- 1,6	0,3(0,6)		7
	•					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed			Intermediate	rated sp	eed	Lower rated	speed		Clictics	la a u a A a u a l
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	(a) (2a)	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min 8	Control rod travel mm 3	rev/min	mm
max. ca. 66	9,9 4,0 1400	15,2-17 1240-12 1320-13 0- 1	250 150	-	• •	-	ca. 11 350-510	300	nin.6,1 ,6-4,8		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		intermediate speed	Fuel deli high idle s	very characteristics Sa	Starting Idle switchin		Torque- travel	Control roo
rev/min	cm ³ /1000 strokes .	rev/min 40	rev/min	cm ³ /1000 _, strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 700	1,0 bar 107,0-109,0 (104,0-112,0)	1240-1250*	LDA 1000 LDA 700	1,0 bar 109,5-112,5 (106,0-116,0) 0 bar 89,0-91,0 (86,0-94,0)	100 300	150,0-190,0 12,0- 16,0	-	<u>-</u>

Chucking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

7.86

VOL 7,1 b

Test at n =

rev/min decreasing pressure ~ in bar gauge pressure

500	increasing		
Pump/governor	Setting	Measurement	diminution • Control rod travet difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 P RS 494 + RQVPA 435-3	1,0	0 0,38 0,29	10,9-11,0 10,0-10,1 10,7-10,8 10,2-10,4

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

BE Encas

stoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 7,1 b3

1. Edition c

PE 6 P 110 A 320 RS 494-1 RQV 300-1200 PA 435-4 Komb.-Nr. 0 401 846 524

supersedes -

company: Volvo engine: TD 71 K 177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2.95-3.15)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3.	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (forque-control valve) mm 6
700	11,9+0,	1 12,1-12,3	0,4(0,75)			
300	4,8-5,	0 1,7-2,1	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed	.		Intermediate	rated sp	eed	Lower rated	speed			Clidian	
deflection of control lever		Control rod travel mm rev/min 3	(18) (28)	Degree of deflection of control lever	_	Control rod travel mm 4	Degree of deflection of control lever	rev/min 8	Control rod travel mm (_	rev/min	mm
max. ca. 66	1200 10,9 4,0 1400	15,2-17 1240-12 1320-13 0-1	250 350			-	ca. 11 350-510	300	min.6,3 4,8-5,0	3		

Torque control travel a = +

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter rev/min	d stop np. 40°C (104°F) 2	Rotational-speed ②b limitation intermediate speed rev/min 49	rev/min cm³/1000 strokes		idie switchir	fuel delivery 6 ng point cm³/1000 strokes	Torque- travel rev/min	Control od travel mm
LDA 700	1,0 bar 121,0-123,0 (118,0-126,0)	1240-1250*	LDA 1000 LDA 700	1,0 bar 120,5-123,5 117,0-127,0) 0 bar 79,0-81,0 (76,0-84,0)	100 300	165,0-185,0 17,0- 21,0		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

VOL 7,1 b3

- 2 -

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

500			
Pump/governor	Setting	Measurement	diminution Control rod travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 PRS 494-1 +RQVPA 435-4	1,0	0 0,60 0,28	11,9-12,0 9,6- 9,7 11,7-11,8 9,8-10,0

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod fravel)

Test Specifications Fuel Injection Pumps 1 and Governors

VDT-WPP 001/4 CAT 10.5 q 1

1. Edition

PES 6 P 100 A 720 LS 502 Komb.-Nr. 9 400 087 345

RQV 350-950 PA 798-2

supersedes company Caterpillar

Values only apply to test nozzle-and-holder assembly 1 688 901 017 and fuel-injection test tubing 1 680 750 008

engine 3306 DIT 114 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres Rotational speed	Control rod	(3.90-4.10) Fuel delivary	mm (from BDC) Difference	RW = 9,0 Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm³/100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
950	8,7-8,8	8,8-8,9	0,35(0,6)			
350	6,4-6,6	1,3-1,7	0,35			
	•					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed	•	Intermediate	e rated sp	eed	Lower rated	speed		Stidion	lanua tenual
Degree of deflection of control lever	rev/min Controt rod travel mm 2	Control rod travel mm rev/min 2a	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min	mm
max. ca. 65	1055 7,7 4,0 1180	15,2-17,8 980-990 1025-1055 0-1,0	-	٠	-	ca. 15	100 350 480-	min.8,5 4,9-5,1 540 = 2,0	700	1,1-1,4 3,4-3,7 5,2-5,5 6,8-7,0 8,6

Torque control travel a = 0.70

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil te		Intermediate speed	high idle s	very characteristics 5a	Idle	fuel delivery 6	Torque-control 5 travel Control rod		
rev/min	cm³/1000 strokes	rev/min 49	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	røv/min	travel mm	
<u> -</u>	2	3	4	5	6	7	8	9	
950	88,0-89,0 (85,5-91,5)	980-990*	500 800	100,0-104,0 (98,0-106,0) 91,0-95,0 (89,0-97,0)	100	157,0-177,0 (153,0-181,0	950)500 800 850	8,7-8,8 9,4-9,5 9,1-9,3 8,9-9,2	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 CAT 7.0 d 2

1. Edition

PES 4 P 100 A 720 LS 504

RQV 350-1100 PA 798-3

supersedes -

Komb.-Nr. 9 400 087 340

company: Caterpillar 3304 DINA engine.

Values only apply to test nozzle-and-holder assembly 1 688 901 017 and fuel-injection test tubing 1 680 750 008

78 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

W ONG	(3.90-4.10)	min (nom bbc)			
Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
9,7-9,8	8,6-8,7	0,35(0,6)			
6,8-7,0	1,3-1,7	0,35(0,55)		
	Control rod travel mm 2 9,7-9,8	Control rod travel mm cm³/100 strokes 3 9,7-9,8 8,6-8,7	Control rod travel mm cm³/100 strokes 2 9,7-9,8 8,6-8,7 Difference cm³/100 strokes 4 0,35(0,6)	Control rod travel mm cm³/100 strokes 2 9,7-9,8 8,6-8,7 Difference cm³/ 100 strokes mm 2	Control rod travel mm cm³/100 strokes 2 9,7-9,8 8,6-8,7 Difference Control rod travel cm³/ 100 strokes 2 0,35(0,6) Fuel delivery cm³/ 100 strokes 2 3 0,35(0,6)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed		Intermediate	e rated sp	eed	Lower rated	speed			
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod (a) travel mm rev/min (2a)	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel		leeve travel
1	2	3	4	5	6	7	8	9 (3)	rev/min 10	11
max.	1150	15,2-17,8	-		-	ca. 14	100	min.9,5	350	1,3-1,7
ca. 67	8,7 4,0	1130-1140 1190-1220					350 460-	5,1-5,3 520 = 2,0	450 600 1000	3,2-3,5 4,4-4,7 7,0-7,2
	1320	0-1,0				320-390			1150	8,6
						3a				·

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten rev/min	d stop np. 40°C (104°F) 2	Rotational-speed (2b) limitation intermediate speed rev/min (4a)	high idle s	cm³/1000 strokes	idie switchii	• •	Torque- travel	Control 5 Control rod travel mm
1100	86,0-87,0 (83,5-89,5)	1130~1140*	700	82,0-86,0 (80,0-88,0)	100	165,0-185,0 (161,0-189,0		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.86

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 CAT 7,0 d 1

1. Edition

supersedes -

E

PES 4 P 100 A 720 LS 504 Komb.-Nr. 9 400 087 342

O A 720 LS 504 RQV 350-950 PA 798-4

Values only apply to test nozzle-and-holder assembly

company:

Caterpillar 3304 DINA 66 kW

1 688 901 017 and fuel-injection test tubing 1 680 750 008

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

stroke	(3.90-4.10)	mm (from BDC)	RW = 9.	0-12.0 mm	
Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
8,9-9,0	7,9-8,0	0,35(0,6)			
6,8-7,0	1,3-1,7	0,35(0,55)		
•					
	Control rod travel mm 2 8,9-9,0	Control rod travel mm cm³/100 strokes 3 8,9-9,0 7,9-8,0	Control rod travel Control rod travel Control rod travel Control rod travel Control rod travel Con3/100 strokes 3 Con3/100 strokes 4 Con3/100 strokes 4 Con3/100 strokes 4 Con3/100 strokes 4 Con3/100 strokes 4 Con3/100 strokes 4 Con3/100 strokes 4 Con3/100 strokes 4 Con3/100 strokes 4 Con3/100 strokes 4 Con3/100 strokes 4	Control rod travel mm	Control rod travel

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Stidings	leeve travel
deflection	rev/min Control rod travel mm 2	Control rod (a) travel mm (2a) 3	Degree of deflection of control lever	re∀/min 5_	Control rod travel mm 4	Degree of deflection of control lever	rev/min 8	Control rod travel mm 3	rev/min	mm
max.	1050	15,2-17,8	-	•	-	ca. 14	100	min.8,5	350	1,3-1,7
ca. 64	7,9 4,0 1150	980-990 1025-1055 0-1,0				320-390	490-	5,1-5,3 550 = 2,0	500 700	3,3-3,6 5,1-5,4 6,8-7,0 8,6
						3a	<u></u>			

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten	d stop np. 40°C (104°F) 2	fimitation intermediate speed	high idle s	very characteristics 58 speed 5b	Starting Idle switchir	. 0	Torque- travel	Control cod
rev/min	cm ³ /1000 strokes	rev/min 4e	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
950	79,0-80,0 (76,5-82,5)	980-990*	500 700	65,5-69,5 (63,5-71,5) 73,5-77,5 (71,5-79,5)	100 350	165,0-185,0 (161,0-189,0 5,1-5,3 mm RW	500 700	8,9-9,0 9,4-9,5 9,2-9,4 8,9-9,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

5.86

Testoil-ISO 4113

1. Edition

PES 4 P 100 A 720 LS 504

RQV 350-1000 PA 798-5

supersedes

Komb.-Nr. 9 400 087 343

Values only apply to test nozzle-and-holder assembly 1 688 901 017 and fuel-injection test tubing 1 680 750 008

companyCaterpillar engine: 3304 DINA 66 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000	8,7-8,8	7,4-7,5	0,35(0,6)			
350	6,8-7,0	1,3-1,7	0,35(0,55)		7
	•				<u> </u>	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed			Intermediate	rated sp	eed		Lower rated	speed		Sliding	loove terms
	rev/min Controt rod travel mm 2	Control rod travel mm rev/min	(a) (28)	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4	•	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm
max.	1050 7,7	15,2-1 1030-1			.=	-		ca. 14	350	min.8,5 5,1-5,3	350 500	1,3-1,7 3,3-3,6
	4,0 1200	1070-1 0-1	1					320-390	ł	550=2,0	700 900 1050	5,1-5,4 6,8-7,0 8,6
								3 9				

Torque control travel a = 0.4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 2b fimitation intermediate speed	Fuel deli high idle :	very characteristics (5a) speed (5b)	Starting Idle switchir		Torque travel	-control (5
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min 4	cm ³ /1000 strokes	rev/min	cm³/1000 strokes 7	rev/min	travel mm 9
1000	74,0-75,0 (71,5-77,5)	1030-1040*	500 800	60,5-64,5 (58,5-66,5) 72,0-76,0 (70,0-78,0)	100 350	165,0-185,0 (161,0-189,0 5,1-5,3 mm RW	500	

Chucking values in brackets

* 1 mm less control rod travel than col. 2

5.66

BOSCH

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Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 IHC 13,4 e

2. Edition

En

PES 6 P 110 A 420 LS 3037

EP/RSV 350-1050 P2/425 DR

supersedes 5.83 company IHC

Values only apply to test nozzle-and-holder assembly 1 688 901 018 and fuel-injection test tubing 9 681 230 724

DTI-817 C Romb.-Nr. 0 402 076 710

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Suction-gallery pressure 2,8 bar

Port closing at prestroke

2,0 - 2,1 (1,95-2,15)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm7100 strokes	cm ³ / 100 strokes	mm	cm ² /100 strokes	mm
1	2	3	4	2	3	6
1050	11,3+0,1	19,9-20,1	0,4			
350 **	4,6-4,7	2,0-2,5				
With cont reached.	rol lever Then adjust	n end position idle spring	: increase o that it	speed unt makes conta	1 4 mm contro	-rod travel is ut by one turn.

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm 2		Interme	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm 9	ハッノ	rque control Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 21		** 20,0-21,0		12,1-12,3
ca.45	10,3 4,0 1300	1090-1100 1145-1175 0,3 - 1,7					200 350 390-420	11,0-21,0 4,6 =2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp_40°C (104°F)	6 Rotational- speed limitat		uel delivery naracteristics	Starting t	uel delivery 5	(4a) Idii	e stop
rev/min	cm/1000 strokes	changed to) rev/min 3	rev/min 4	cm³/1C00 strokes 5	rev/min	cm ¹ /1000 strokes	rev/min	Control rod travel mm 9
LDA 1050	0,8 bar 199,0-201,0 (197,0-203,0)	1090-1100*	LDA 750 LDA 800	0,8 bar 202,0-208,0 (199,0-211,0) 0 bar 145,0-153,0 (142,0-156,0)	100 350	180,0-205 20,0-25,		-

Checking values in brackets

* 1 mm less control rod travel than col 2

7.86

BOSCH

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4. 1980 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH.

Test at n =

rev/min decreasing pressure - in bar gauge pressure

IHC 13,4 e

2 -

800	mcreasing		
Pump/governor	Setting	Measurement	diminution • Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES6PLS3037 EP/RSVP2/425DR	0,19 - 0,25		Saugregelweg + 0,5 mm
EF/ K3VP2/ 425UR		0,49 - 0,52	10,8 - 10,9
L	<u> </u>		

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 47,5 h

1. Edition

PE 12 ZWM 160/120 RS 2012 Komb.-Nr. 0 406 030 004

Replaces -Firm MTU

12- 9- 4- 5- 8- 11- 2- 3- 10- 7- 6- 1 Engine 0-15-60-75-120-135-180-195-240-255-300-315° \pm 0,5° (\pm 0,75°)

12 V 396-03

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Rotational	Control-	Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min 1	mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes	
1	2	3	4	5	
1000	18,0	630,0-644,0	20 (30)	625,0-649,0	-
1000	9,0	212,0-240,0	28 (42)	207,0-245,0	
350	9,0	132,0-156,0	16 (24)	127,0-161,0	

Adjust the fuel delivery from each outlet according to the values in [

B. Governor settings

Upper rated		Medium rated speed			Lower rated speed			Torque control		
Control lever deflection degrees	mm min ¹ 2	Control- rod travel mm min I 3	Control lever flection degrees 4	min 1	Control- rod travel mm 6	Control lever de- flection degrees 7	min 1 8	Control- rod travel mm 9	min '	Control- rod travel mm 11
-	•	-	•	-	-	-	-	-		-

Torque control travel a =

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed	Fuel-de charact		Starting fuel delivery		
min 1	cm ³ /1000 strokes 2	min ' 3	min ' 4	cm³/1000 strokes 5	min ' 6	cm³/1000 strokes 7	
Adju	t according to	the engine records.	-	-	-	-	

Checking values in brackets

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Test Specifications Fuel Injection Pumps (A) and Governors

WPP 00% 4 INC 13,4 4

2. Edition

En

PES 6 P 110 A 420 LS 3043

Komb.-Nr. 0 402 076 712

RSV 350-1100 PO/431 DR

supersedes 3.83

company IHC

engine

DTI 817 C

309 kW (420 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1 Port closing at prestroke (1,95-2,15)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre tensioning (torque-control valve)
rev/min	mm (2)	cm/100 strokes	cm ¹ / 100 strokes	mm	cm 7100 strokes	mm
]1	2	3	4	2	3	6
1100	15,4+0,1	25,8-26,0	0,8			
300	5,6-5,8	0,7-1,2	0,4			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	tev/min	Interme	ediate rate	d speed	(4)	Lowe	r rated speed	(3) 10	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	•	•	ca. 20	350 100	5.5 20,0-21,0		0 0,9-1,1
ca. 44		15,6-16,2 6,0-9,2 1,3-2,0					350 410	5,4-5,6 1,3-2,0	500	0,9-1,1

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(4)	ill-load stop	6 Rotational- speed limitat	114361	uel delivery naracteristics	Starting 1 Idle	luel delivery 5	4a) Idle stop		
rev/min	emp 40°C (104°F) cm1/1000 strokes	Note changed to) rev/min	rev/min	cm ² /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
LDA 1100	1,2 bar 257,5-259,5 (254,5-262,5)		LDA 700	1,2 bar 284,5-288,5 (281,5-291,5)	100	255,0-295	,0		
i			LDA 500	0 bar 151,5-155,5 (148,5-158,5)					

Checking values in brackets

* 1 mm less control rod travel than col. 2



IHC 13,4 d - 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travet difference
	Gauge pressure = har	Gauge pressure = bar	mm (1)
PES 6 P LS 3043 + RSVPO/431 DR	0,09-0,17	0,80-0,93	Beginn Ende

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 DEE 10,1 b

3. Edition

US-PES 6P 110 A 720 RS 3086 US-RSV 400-1050 PO/492-1

Komb.-Nr. 9 400 231 174

company John Deere 6619 A engine

215 kW

Values apply to fuel-injection test tubing 9 681 230 705

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(3.40 - 3.60)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ¹ /100 strokes 3	Oifference cm ¹ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ¹ /100 strokes 3	Spring pre-tensioning (torque-control valve)
1050	13,9+0,1	21,4-21,6	0,4 (0,75			
400	6,0-6,2	1,9-2,5	0,45(0,75			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	t rev/min	Interme	diate rate	d speed	4	Lower	rated speed	(3) 10	rque control
Degree of deflection	Control rod travel	Control rod travel	1		1	Control- lever	Î	Control rod		Control rod travel
of control lever	mm	mm rev/min				deflection in degrees	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 21	400	5,6	1050	13,9-14,0
	X =						400	6,0-6,2	700	14,3-14,6
ca. 42	12,9	1090-1100					540-60	0 = 2,0		
29	4,0 1280	1185-1215 0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b FL	speed for			uel delivery naracteristics	Starting fuel delivery (5) (4a) Idle stop				
rev/min	emp 40°C (104°F) cm ^{1/} 1000 strokes 2	Note. changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes	rev/min 8	Control rod travel mm	
LDA 1050	1,0 bar 213,5-215,5 (210,5-218,5)	1090-1100*	LDA 700	1,0 bar 223,5-226,5 (220,0-230,0)	100	135,0-155,	0 400	6,1	
			LDA 500	0 bar 136,5-139,5 (133,0-143,0)					

Checking values in brackets

^{* 1} mm less control rod travel than col 2

Test at n = rev/min decreasing pressure - in bar gauge pressure

DEE 10,1 b

- 2 -

Setting	Measurement	diminution , Control rod travel- difference
Gauge pressure = bar	Gauge pressure = bar	mm (1)
0,48	0,26	14,1 - 14,2 12,9 - 13,3
	Gauge pressure = bar	Setting Measurement Gauge pressure = bar Gauge pressure = bar 0,48

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

2

Testoil-150 4113

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 KHD 9,6 n 2. Edition

PES 6 P 110 A 720 RS 3104 Komb.-Nr. 0 402 046 759

RQ 900 PA 738

supersedes 9.84

company: KHD

encine

BF 6 L 413 FR 161 kW/1800 min Generating sets

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke (2.75-2.95)	mm (from BDC)		RW = 9,0-1	RW = 9,0-12,0 mm		
Rotational speed	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm³/ 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)		
850	12,6+0,	14,7-14,9	0.4(0.75)	2	3	6		
030	12,070,	14,7-14,9	0,4(0,75)	<u> </u>	 			
300	6,7-6,9	1,3-1,9	0,45(0,75)				
			1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider	_	Full-load s	speed re	gulation		idle spec	ed regula	ation	_	Torque d	control
PRG che		1)	Setting po	pint		cifications (4)	Setting p	point	Test spe	cifications (5)		3
rev/min 1	Control rod travel mm 2		rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
•	-		•	-	11,6 5,5 1050	900-905 936-945 0-1,0	•	-	-	-	•	-
	ontrol travel			_				900	0_905	min-1		1 mm less contro

Torgue-control travel on flyweight assembly dimension a =

Speed regulation: At mm

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

1								
governor	delivery on control lever mp. 40°C (104°F)	Control rod stop	<u>3</u>	Fuel deliv	ery characteristics	3 b	Starting (tuel delivery 6
rev/min 1	cm³/-1000 strokes	rev/min 3		rev/min	cm³/-1000 strokes 5		rev/min	red trave cm ³ /1000 strokes:/ mm 7
850	147,0-149,0 (144,0-152,0)	-		-	-		-	-

Checking values in brackets

7.86

BOSCH

Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 KHD 15,8 n

2. Edition

PE 10 P 110 A 920/5 LS 3138

RQ 300/1150 PA 535-1

supersedes7.85

Komb.-Nr. 0 401 849 712

1-10- 9- 4- 3 - 6 - 5 - 8 - 7 - 2 0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°) company. KHD
engine BF 10 L 413 FZT
265 kW/2300 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,75-2,95)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	12,0+0,1	9,7-10,0	0,4(0,75)			
300	8,6-8,8	1,1-1,9	0,45(0,75)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkir PRG che rev/min	Control rod Iravel	Full-load s Setting po rev/min	•	~	rev/min	Idle spe Setting previous	Control rod travel	1	Torque	Control rod (3)
600 VH :	19,2-20,9 max. 46°	600	20,0		1195-1210 1235-1265 0-1,0	300	7,0	min. 8,4 6,9-7,1 30 = 2,0		11,3-11,4 12,0-12,1

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At 1195-1210 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp_40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting to	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min	Control red travel cm ³ /1000 strokes:/ mm
LDA 800	0,9 bar 143,5-146,5 (141,0-149,0)	-	-	-	-	-

Checking values in brackets

7.86

BOSCH

KHD 15,8 n

- 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel difference
	Gauge pressure - bar	Gauge pressure = bar	mm (1)
PE 10 PLS 3138 + RQPA 535-1	0,90	0 0,50 0,35	12,0-12,1 10,0-10,1 11,5-11,6 10,2-10,4

Notes

(1) when n =

rev/min and gauge pressure =

bar (- maximum full-load control rod travel)

WPP 001/4 FOR 6,6 b 3. Edition

PES 6 P 110 A 720 RS 3145

ROV 350-1300 PA 748

supersedes 1.86 Ford

Komb.-Nr. 9 400 087 305

6,6 1 TC

Values only apply to test nozzle-and-holder assembly

123 kW

1 688 901 017 and fuel-injection test tubing 1 680 750 008

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing difference between control-rod

Port closing at pres		1,25-4,35 1,20-4,40)	mm (from BDC)		•	ax. 3,5-4° camshaf
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	11,6+0,	1 9,4-9,7	0,4(0,75			
350	6,9-7,	1 1,0-1,5	0,45(0,7	5)		
	•					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed			Intermediate	rated sp	eed	Lower rated	speed		Slidings	leeve travel
	rev/min Control rod travel	mm	2	Degree of deflection of control		Control rod travel	Degree of deflection of control	<u> </u>	Control rod travel	Silving s	1
lever	mm	rev/min (a	_ \I		rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
max.	1350	15,2-17,8	3	-		-	ca. 16	100	min.10,0	350	0,6-1,3
ca. 64		1360-1370						350 580-6	6,9-7,1 40=2,0	500 800	2,3-2,7 4,0-4,3
	4,0 1600	1470-1500 0-1,0	ו				370-440			1000 1300	5,0-5,3 7,3
							3a				. ,0

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

	d stop np. 40°C (104°F) 2	limitation intermediate speed	high idle s		idle switchis	ng point	Torque- travel	Control rod
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	88	9
1300	93,5-96,5 (91,0-99,0)	1360-1370*	600	87,5-91,5 (84,5-94,5)	100	105,0-125,0 (101,0-129,0) = 20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FOR 7,8 a 2

2. Edition

En

PES 6 P 110 A 720 RS 3150 Komb.-Nr. 9 400 087 336

RQV 350-1300 PA 776-2

Values only apply to test nozzle-and-holder assembly 1 688 901 017 and fuel-injection test tubing 1 680 750 015

supersedes 4.86

company: Ford

7,8 1 - TC 210 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	(4,20-4,40)	mm (from BDC)	RW = 9,0	0 <u>-12,0 mm</u>	
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm mm	cm ³ /100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes	mm 6
1300	12,3+0,1	12,6-12,8	0,5 (0,9)			
350	7,6-7,8	2,3-2,7	0,35(0,55			
		ence between co k. 2,0-3,0° c	ntrol-rod amshaft			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	peed	•	Intermediat	e rated sp	eed	Lower rated	speed		0114	
deflection of control	rev/min Control rod travel mm 2	Control rod (a trave) mm (28 3	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min	Control rod travel mm 3		mm
max.	1300 11,3 4,0 1620		-		•	ca. 16 370-440	350 590-6	min. 9,5 7,6-7,8 550 = 2,0	500	0,6-1,3 2,3-2,7 4,0-4,3 5,0-5,3 7,3

Torque control travel a = 0.3 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter rev/min		Rotational-speed ②b limitation intermediate speed rev/min	high idle s	very characteristics 5a speed 5b cm³/1000 strokes	Starting Idle switchin	ng point	Torque travel rev/min	Control (5) Control rod travel mm
LDA 1300 LDA 600	0,55 bar 126,0-128,0 (124,0-130,0) 0,55 bar 90,5-94,5 (88,5-96,5)	1360-1370*	LDA 1000 LDA 500	0,55 bar 118,0-122,0 (116,0-124,0 0 bar 77,0-79,0 (74,0-82,0)		(144,0-172,0	600 1050	12,6+0, 12,5+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.85

BOSCH

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C by Robert Bosch GmbH. D-7 Stuttgert 1, Postfach 50. Printed in the Federal Republic of Germany.
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Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

FOR 7,8 a 2

_ 2 ..

Pump/governor Setting Gauge pressure = bar Gauge pressure = bar Control rod travel-difference mm (1) PES 6 P. RS 3150 + RQV. PA 776-2 O,42 0,42 12,4-12,5 12,3-12,4				
PES 6 P. RS 3150 0,55 12,6-12,7 12,3-12,4 0,42 12,4-12,5	Pump/governor	Setting	Measurement	Control rod travel-
+ RQVPA 776-2 0 12,3-12,4 0,42 12,4-12,5		Gauge pressure = bar	Gauge pressure = bar	mm (1) .
		0,55	0,42	12,3-12,4 12,4-12,5

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 FOR 7,8 b1

1. Edition

_En

PES 6 P 110 A 720 RS 3151 Komb.-Nr. 9 400 087 367

RQV 350-1200 PA 777-1

company Ford

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

engine 7,8 TC 165,4 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	cm³/ 100 strokes 4	mm 2	cm ³ /100 strokes	mm 6
1200	14,1+0,1	14,2-14,4	0,5 (0,9			
350	7,4-7,6	1,6-2,0	0,35(0,5)	 	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed	•	Inte	rmediate	rated sp	eed		Lower rated	speed		Ctiating	
Degree of deflection of control lever	rev/min Control rod travel mm	mm rev/min (2	ソdeff	pree of ection ontrol er	rev/min		d (4)	Degree of deflection of control lever	rev/min	Control rod travel mm 3		mm
 	2	3	4_		5	6		7	8	9	10	11
max.	1300	15,2-17,8	<u> </u>		٠ -	-		ca. 15		min.9,0		0,6-1,3
ca. 65	13,1 4,0 1600	1260-1270 1425-1455 0 - 1,0						370-440	620-6		800 1000	2,3-2,7 4,0-4,3 5,0-5,3 7,3
								3a				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil te		Rotational-speed 2b limitation intermediate speed	high idle s	very characteristics 5a speed 5b	Starting Idle switching	• •	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 49	ا ا		١,	cm³/1000 strokes	rev/min	travel mm
			-		6	<u>'</u>	8	9
LDA 1200	0,8 bar 141,5-143,5 (139,5-145,5)	1260-1270*	LDA 600	0,8 bar 108,0-112,0 (106,0-114,0)	100	150,0-170,0 (146,0-174,0) = 20,0-21,0	-	-
			LDA 500	0 bar 73,0-75,0 (70,0-78,0)		mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

rev/min decreasing pressure – in bar gauge pressure Testatn =

FOR 7,8 b1

-2-

500 Pump/governor	Setting	Measurement	diminution , Control rod travel-
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 PRS 3151 + RQVPA 777-1	0,80	0 0,58 0,39	13,8-13,9 12,1-12,2 13,7-13,8 12,6-12,8

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 KHD 16.0 d

1. Edition

PE 10 P 110 A 920/5 LS 3164 Komb.-Nr. 0 401 849 722

RQV 300-1050 PA 790

supersedes

KHD company:

BF 10 L 513

1-10- 9- 4- 3- 6- 5- 8- 7- 2 0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)

247 kW/2100 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	11,5+0,1	12,0-12,2	0,4(0,75			
300	6,4-6,6	1,2- 1,8	0,45(0,7			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated :	speed			Intermediate	rated sp	eed		Lower rated	speed		Sliding	sleeve travel
Degree of deflection of control lever	rev/min Control rod travel mm 2	mm	(a)	Degree of deflection of control lever	rev/min 5	Control root travel mm 6	4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3		1
max. ca. 55	1070 10,5 4,0 1300	15,2-17 1090-110 1150-110 0- 1	00 80			-		ca. 18 340-460 3a	300	min. 7,9 6,4-6,6	2	1,2-1,4 5,4-5,6 8,2

Torque control travel a = 0.30 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-toad d Control-rol Test oil ten rev/min		Rotational-speed 2b timitation intermediate speed rev/min 4a	(30)		idle switchin	• •	Torque- travel	Control 5 Control rod travel
1050	120,0-122,0 (117,0-125,0)	3 1090-1100*	-	-	100	135,0-165,0	1050 885	9 11,8+0, 11,5+0, 11,5+0, 11,7+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 MB 14,6 q 4

supersedes 10.85

_{company:} Daimler-Benz

OM 422 A

243,0 kW

2. Edition

PE 8 P 120 A 320 LS 3807-10 RQ 300/1150 PA 546-6

Komb.-Nr. 0 401 848 770

0 401 848 769

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067 1-8-7-2-6-3-5-4 je 45 ° ± 0,5 (± 0,75 °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

②

(3,95-4,15)

mm (from BD@

Cv1.8

		,				
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ² / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,5+0,	15,3-15,5	0,5 (0,9)			
300	5,0-5,2	1,2-1,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

PRG che	Control rod	1 1	•	Test spec Control red travel mms	cifications (4)	tdle spe Setting (rev/min	Control rod travel		cifications Control rod travel	Torque o	Control rod (3)
600 VH =	19,2-20,8 max. 46 °	600	20,0	9,5 4,0 1350	1200-1215 1250-1280 0 - 1,5	300	5,1	9 100 300 350-	min. 6,0 5,0-5,2 390 = 2,0		10,5-10,6 10,8-11,0

Torque-control travel on flyweight assembly dimension a 0,2

Speed regulation: At min-1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics (3b)	Starting (. —
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm ³ /1000 strokes:/ mm
LDA 1150	0,7 bar 153,0-155,0 (151,0-158,0)		LDA 750 LDA 500	0,7 bar 168,5-170,5 (165,5-173,5) 0 bar 139,0-141,0 (136,0-144,0)	100	140,0-160,0 (136,0-164,0)

Checking values in brackets

MB 14,6 q 4 -

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

300		,	
Pump/governor	Setting	Measurement	diminution , Control rod travet difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8PLS 3807-10 +RQPA 546-6	0	0,40 0,47	10,3-10,5 10,4-10,5 11,0-11,2
ø			

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

PE 12 P 120 A 320 LS 3819-14 RQV 350-1150 PA 493-6 1- 5- 9- 8- 3 - 4 -11 -10 - 2 - 6 - 7 - 12 $0-15-60-75-120-135-180-195-240-255-300-315^{\circ} \stackrel{+}{-}0,5^{\circ} (\stackrel{+}{-}0,75^{\circ})$

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -Daimler-Benz company: OM 424 LA engine: 452 kW Komb.-Nr. 0 401 840 732

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke (3	4,0-4,1 3,95-4,15)	mm (from BDC) Cy1.12; RW = $9,0-12,0$ mm								
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6					
1150	12,1+0,1	18,0-18,2	0,5(0,9)								
350 650	4,8-5,0 -	1,6-2,2	0,8(1,2)								

0,8(1,2

Adjust the fuel delivery from each outlet according to the values in F

Sect. C, Col. 4-5

B. Governor Settings

500

deflection	rev/min	Control rod (1a travel	of control	rated sp	Control rod travel	Lower rated Degree of deflection of control	speed	Control rod travel	Sliding s	eleeve travel
lever	mm	rev/min (2a	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9 ;	10	11
max.	1180	15,2-17,8] -		-	ca. 12	100	min. 6,2	350	2,2-2,3
ca. 65	11,1 4,0 1350	1190-1200 1235-1265 0 - 1,0				_	350	4,5-4,7	510 1150 1200	3,2-3,5 7,5-8,3 9,0
						400-600	ł			
						3a				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel deliv	very characteristics 5a	Idle	fuel delivery 6	Torque- travel	Control rod
røv/min	cm ³ /1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 1150 1150	0,7 bar 180,0-182,0 (177,0-185,0) 134,0-138,0 (131,0-141,0)		LDA 650 LDA 500	0,7 bar 179,0-185,0 (176,0-188,0) 0 bar 131,0-133,0 (128,0-136,0		160,0-180,0 (156,0-184,0)	-	

Checking values in brackets

** Set lower delivery at inner lever!

* 1 mm less control rod travel than col. 2

4.86

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MB 21,9 b 4 - 2 -

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE12PLS 3819-14 +RQVPA 493-6	0,70	0 0,54 0,47	12,1-12,2 10,1-10,3 11,4-11,5 10,6-10,8

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1 and Governors

WPP C01/4 MB 21.9 e 3

1. Edition

PE 12 P 110 A 320 LS 3820-12 RQV 350-1150 PA 378-4 Komb.-Nr. 0 401 840 731 1-5 - 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12

supersedes '

Daimler-Benz company:

0-15-60-75-120-135-180-195-240-255-300-315 °

OM 424 engine:

± 0,5 ° (± 0,75 °)

309 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Cy1. 12

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,4+0,1	12,2-12,4	0,4 (0,8)			
350 650	7,7-7,9 - Sec	1,4-2,0 t. C, Col. 4-5	0,4 (0,7) 0,6 (0,9)	i		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed			Intermediate	rated sp	eed	Lower rated	speed	Sliding sleeve travel		
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	(e)	Degree of deflection of control lever 4	_	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min	
max. ca. 64	1200 10,4 4,0 1300	15,2-17, 1170-118 1235-126 0 - 1,6	30 55	•		-	ca. 20 375-485 ③		min. 9,0 7,4-7,6	300 580 870 1150	1,7-1,9 3,6-3,9 5,2-5,6 7,8

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten	elivery d stop np. 40°C (164°F) 2	intermediate speed	high idle s	very characteristics Sa speed Sb	Starting idle switchin		Torque- travel	Control cod
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
1150	122,0-124,0 (119,0-127,0		600	96,0-100,0 (93,0-103,0)	100	130,0-140,0 (126,0-144,0		-
1150	90,0-94,0 (87,0-97,0) **							

Checking values in brackets

** Set lower delivery at inner lever!

* 1 mm less control rod travel than col. 2

4.86

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WPP 001/4 MAN 20,9 u

2. Edition

PE 12 P 120 A 520/4 LS 3828

RO 1200 PA 660-1

supersedes 9.85

1-5-9-8-3-4-11-10-2-6-7-12

company: MAN

0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°) engine:

D 2842 LE

559 kW/2300 min

Values only apply to test nozzle-and-holder assembly

Komb.-Nr. 0 401 840 728

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

MAN-Nr. 2-7686

A. Fuel Injection Pump Settings

Port closing at prestroke

(4.15-4.35)

mm (from BDC)

Cv1. 12

		10 4,007				
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1150	11,9+0,1	20,0-20,2	0,5(0,9)			
250	6,9-7,1	1,7-2,3	0,8(1,2)			
			1	ł		
	Ī					
		1		1	1	1

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider eck	Full-load s	•	_	cifications (4)	Idle spec	•		cifications (5)	Torque o	control 3
rev/min	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control red travel mm -	rev/min	rev/min 7	Control rod travel m.m 8	rev/min 9	Control rod travel mm 10	rev/min	Control rod travel
•	-	-	1		1195-1210 1285-1315 0-1,0	: -	•	-	-	•	-

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At 245-1250 min-1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop	(3)	Fuel delive	ery characteristics	Starting f Idle spee	uel delivery 6
rev/min 1	cm³/-1000 strokes	rev/min 3		rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes;/ mm 7
1150	200,0-202,0 (197,0-205,0)	-		-	•	•	-

Checking values in brackets

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MAN 20,9 t

2. Edition

PE 12 P 120 A 520/4 LS 3828 RQV 250-1150 PA 668-7 supersedes 9.85
1-5-9-8-3-4-11-10-2-6-7-12
0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (±0,75°) engine D 2842 LE Values only apply to test nozzle-and-holder assembly 560 kW
1 688 901 019 and fuel-injection test tubing 1 680 750 067 Komb.-Nr. 0 401 840 725 MAN-Nr. 2-7590

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,9+0,1	20,0-20,2	0,5(0,9)			
250	6,9-7,1	1,7-2,3	0,8(1,2)			
	•					
:						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed		Intermediate	rated sp	eed	Lower rated	speed		Sliding sleeve travel	
Degree of deflection of control	rev/min Control rod travel	Control rod (a) travel mm rev/min (2a)	Degree of deflection of control lever		Control rod travel	Degree of deflection of control		Control rod travel		1
lever 1	mm 2	3	4	rev/min 5	mm (4) 6	lever 7	rev/min 8	mm (3) 9	rev/min 10	mm 11
max.	1150	15,2-17,8	_		-	ca. 12	•	min.8,5	350	2,0-2,5
ca. 66	10,9 4,0 1450	1190-1200 1320-1350 0-1,0					250 400-	6,9-7,1 460=2,0	900 1150	6,7-6,9 8,6
·						<u>3</u>				

Torque control travel a = - mn

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed (2b) limitation intermediate speed	Fuel deliv	very characteristics 5a poeed 5b	Starting Idle switchin	, 0	Torque- travel	control (5)
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travei mm
1	2	3	4	5	6	7	8	9
1150	200,0-202,0 (197,0-205,0		1	-	100	190,0-210,0 (186,0-214,0)	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.00

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Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 MAN 20,9 s

2. Edition

En

PE 12 P 120 A 520/4 LS 3828 RQ 250/1150 PA 739

1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12

0-15-60-75-120-135-180-195-240-255-300-315° ±0,5° (±0,75°)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067 Komb.—Nr. 0 401 840 724

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at presi	roke	(4,15-4,35)	mm (from BDC)		Cy1. 12	
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes	mm 6
1150	11,4+0,1	19,5-19,7	0,5 (0,9)			
250	6,9-7,1	1,7-2,3	0,8 (1,2)			
						·

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	()	Full-load Setting p	oint	Test spe	cifications (4)	Idle spe	_		cifications (5)	Torque	-	<u> </u>
rev/min 1	Control rod travel mm 2	rev/min	Control rod travel rnm 4	Control rod travel mm 5	rev/min	rev/min 7	Control rod travel mm	rev/min 9	Control rod	rev/min 11	Control rod travel	٣
550 VH =	19,2-20,8 max. 46°	550	20,0		1220-1235 1415-1445	250	7,0	250	min.8,5 6,9-7,1 355=2,0	1150 750	11,4-11 11,4-11	,5 ,6

Torque-control travel on flyweight assembly dimension a =

mm

1220-1235 min-1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	lelivery on control lever np. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics		Starting I	luel delivery
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min	cm³/-1000 strokes	•	rev/min	Control rad trave cm³/1000 strokes:/ mm
LDA 1150	1,0 bar 195,0-197,0 (192,0-200,0)	•	LDA 750 LDA 500	1,0 bar 200,0-206,0 (197,0-209,0) 0 bar 119,0-121,0 (116,0-124,0)		100 250	190,0-210,0 (186,0-214,0) 17,0-23,0 (14,0-26,0)
				(116,0-124,0)			

Checking values in brackets

MAN 20,9 s rev/min decreasing pressure – in bar gauge pressure Test at n =

500	3		
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 12 PLS 3828 + RQPA 739	1,0	0 0,30 0,52	11,4-11,5 8,9-9,0 9,2-9,3 10,7-11,0

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 SCA 14,2 e

2. Edition

<u>En</u>

PE 8 P 120 A 920/4 LS 7002-1

RSV 350-1050 P 1/504

1-2-7-3-4-5-6-8 je 45° ±0,5° (±0,75°)

See page 2!

supersedes 3.84
Company DS 14 42

engine US 14 42

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015 All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Komb - Nr. 0 402 678 801

A. Fuel Injection Pump Settings

Port closing at prestroké

5,0-5,1 (4,95-5,15

mm (from BDC)

; RW = 9,0-12,0 mm

Rotational speed	Cuntrol rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre tensioning (torque control valve)
rev/mɪn	mm (2)	cm1/100 strokes	100 strokes	mm	cm1/100 strokes	mm
1	2	3	4	2	3	6
700	13,2+0,1	18,7-18,9	0,6(0,9)			
350	4,4-4,6	1,4-1,8	0,3(0,6)			·
				•		

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

(1) Uppe	r rated speed		Interm	ediate rate	d speed	(4)	Lower	rated speed	(3) 10	rque control
Degree of deflection of control	Control rod	travel		i,		Control- lever deflection	seu/min	Control rod travel		Control rod travel
lever	መ ጠ 2	mm rev/min	4	5	6	in degrees	rev/min 8	9 9	rev/min	mm 11
loose	800	0,3-1,0	· -	•	-	ca.30	350	4,0	-	-
,	ΧÞ	6,0					350	4,4-4,6 $0 = 2.0$		
ca. 64	12,2 4,0 1250	1090-1100 1160-1190 0,3-1,7					440-50	U = 2,U		c.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

W	ill-load stop	6 Rotational- speed limitat		uel delivery paracteristics	Starting (luel delivery 5	(a) Idle stop		
Test oil te rev/min	emp 40°C (104°F) cm ² /1000 strokes	Note changed to) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm=/1000 strokes	rev/min	Control red travel mm	
1	5	3	4	5	6	7	8	9	
700	187,0-189,0 (184,0-192,0)	1099-1100*	1050	183,0-191,0 (181,0-193,0)	100	240,0-290 =20,0-21, mm RW		-	

Checking values in brackets

* 1 mm less control tod travel than col 2

BOSCH

SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 5.10.1983
- Start of fuel delivery-engine: 18° before TDC
- Firing sequence, engine : 1-5-4-2-6-3-7-8

Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 MB 14,7 a 2 1. Edition

En

PE 8 P 120 A 320 LS 7801 RQ 300/1050 PA 762 Komb.-Nr. 0 402 648 817 1-8-7-2-6-3-5-4 je 45° ± 0,5° (± 0,75°) Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

company Daimler-Benz engine. OM 442 a 260 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	cm³/ 100 strokes	mm 2	cm ³ /100 strokes	mm 6
600	13,6+0,2	19,2-19,4	0,5(0,9)			
300 1050	6,2-6,6	1,6-2,2	0,6(1,0)			
700 500 850	-	C, Sp. 4 u. 5	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider ck (1	Full-load Setting p	•	•	cifications (4)	Idle spec	•		cifications (5)	Torque o	control (3)
rev/min	Control rod travel mm 2	rev/min	Control rod travel mm	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel rmm 8	rev/min 9	Control rod travel mm	rev/min	Control rod (
600	19,2-20,8	600	20,0	11,9			5,9	100 300	min.7,5 5,8-6,0	1050	12,8-13,0 13,7-13,9
VH =	max. 46°			1300					405 = 2,0	700	14,0-14,3
				į							
<u> </u>		<u> </u>									

Torque-control travel on flyweight assembly dimension a =

0,65 mm

Speed regulation: At 1095-1110 min-1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	felivery on control lever mp 40°C (104°F)	Control rod stop 32	Fuel deliv	ery characteristics	Starting to	fuel delivery ed Control
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min	cm³/-1000 strokes	rav/min	rod travel cm ³ /1000 strokes / mm 7
LDA 600	0,65 bar 192,0-194,0 (189,0-197,0)	-	LDA 700	1,05 bar 205,0-209,0 (202,0-212,0)	100	175,0-190,0 (171,0-194,0)
LDA 1050	1,05 bar 179,0-182,0 (176,0-185,0)		LDA 500	0 bar 145,0-147,0 (142,0-150,0)		
850	201,0-205,0 (198,0-208,0)					

Checking values in brackets

MB 14,7 a 2

- 2 -

Testatin =

600

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 PLS 7801 + RQPA 762	0,65	0,30 0,40 0,85	13,6-13,8 11,9-12,1 12,9-13,2 13,7-13,8

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 MB 21,9 h

1. Edition

PE 12 P 120 A 320 LS 7805-1 RSV 350-750 POA 825 1-5-9-8-3--4-11-10-2-6-7-12 0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°) engine OM 444 LA Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067 All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes= company Daimler-Benz

Komb.-Nr. 0 402 670 800

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO

5,2-5,3 (5.15-5.35)

mm (from BDC)

Cy1.12; RW = 9,0-12,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque control valve)
rev/min	mm 2	cm/100 strokes 3	cm ¹ / 100 strokes 4	mm 2	cm ¹ /100 strokes	mm 6
700	14,1+0,1	21,0-21,2	0,5 (0,9)			
350	5,4-5,6	1,4-2,0	0,8 (1,2)			
	<u> </u>					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	er rated speed		Intermediate rated speed			(4)	Lower	rated speed	3 Torque control		
Degree of deflection of control	Control rod travel	travel mm rev/min				Control- lever deflection	rev/min	Control rod travel		Control rod travel	
lever 1	2	3	4	5	6	in degrees	8	9	rev/min	11	
loose	800	0,3-1,4	-	-	-	ca. 13	350	5,5	-	•	
	X =	1,75					100	min.19,5			
ca. 25	13,1 4,0 1000	750-755 780-790 0,3-1,7					350	5,4-5,6 **			

The numbers denote the sequence of the test Set idle-speed auxiliary spring at 2 mm control-rod travel,

C. Settings for Fuel Injection Pump with Fitted Governor

	ultioad stop emp. 40°C (104°F)	Rotational- speed limitat		uel delivery naracteristics	Starting (uel delivery 5	4a Idle stop	
rev/min	cm/1000 strokes	Note changed to) rev/min 3	rev/min 4	cm/1000 strokes 5	rev/min 6	cm/1000 strakes 7	rev/min 8	Control rod travel mm 9
700	210,0-212,0 (207,0-215,0)	750-755*	650	197,0-213,0 (194,0-216,0)	100	210,0-230 (206,0-234		-

Checking values in brackets

* 1 mm less control rod travel than col 2

2\$

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 37,4 b

13. Edition

PE 10 ZWM 140/120 RS 38/11

RQU 425/1100 ZW 30 DR

Replaces 11.83 MTU

Komb.-Nr. 0 406 039 109

Governor adjustment according to VDT-I-420/112

Firm: MB 838 Ca M Engine:

1-2-9-10-3-4-5-6-7-8

0-45-72-117-144-189-216-261-288-333° ± 0,5° (± 0,75°)

Note VDT-W-Allq./7!

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Rotational	Control-	Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min 1	mm	cm³/1000 strokes	cm³/1000 strokes	cm ³ /1000 strokes	
1	2	3	4	5	
600	18,0	373,0-378,0	11,0 (16,0)	370,0-381,0	-
600 200 1080 900/550	9,0 9,0 - -	143,0-163,0 71,0-91,0 C, Sp. 2 C, Sp. 5	14,0 (21,0) 14,0 (21,0) 9,0 (14,0) 11,0 (16,0)	138,0-168,0 66,0-96,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated	speed		Medium ra	ted spe	ed	Lower rat	ed spee	d	Torqu	e control
Control lever deflection degrees 1	mm min ' 2	Control- rod travel mm min '	Control lever flection degrees 4	min 1 5	Control- rod travel mm 6	Control lever de- flection degrees 7	min 1 8	Control- rod travel mm 9	min 1	Control- rod travel mm 11
max.	600	18,0-18,5	Sliding	block	position	ca. 27	600	0,5-1,8	70	0 17,6-18,
Ca. 58	1080 12,2 5,0	13,2 1135-1145 1205-1235 1250-1295			1100	0,2-1,	150 350 425 4 500	16,5-18,0 9,0-12,5 5,3-5,8 1,5-3,5	90 105	0 16,8-17,
			ł		1140-1170	0	800	0,6-1,2	1	

 $mm \pm 0.03$ Torque control travel a = 0.35

Speed regulation: At 1130 min⁻¹ 1mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gov	nd delivery ernor control lever il temperature 40°)	Control rod stop at speed		uel-delivery characteristics		g fuel y
min 1	cm³/1000 strokes 2	min 1 3	min 1	cm³/1000 strokes 5	min ¹ 6	cm³/1000 strokes 7
080	316,0-320,0 (313,0-323,0)	-	900	305,0-313,0 (301,0-317,0		18,0-18,2 mm Ri
	(313,0-323,0)		550			51,0-57,0
				(207,0-203,0	Hig 1220	

Checking values in brackets

Shutoff solenoid 0,5-1,5 mm in front of stop.

05.85

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Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 CUM 5,9 t 4

1. Edition

VE 6/12 F 1100 R 225-9 0 460 426 075 DHK: 1 688 901 027; 250 + 3 bar

Overflow temperature 45° C

supersedes CDC company: 6 BT-5.9 124 PS /

2200 min⁻¹

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Pre-stroke setting

0,3

± 0,02 (0,04)

Test Instructions and Test Equipment

see VDT·W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	750	3,3-3,7	mm		
1.2 Supply-pump pressure	750	4,0-4,6	bar (kgf/cm²)		
1.3 Full-load delivery with	-		cm ³ /1000 strokes		
charge-air pressure Full-load delivery without	750	59,5-60,5	cm³/1000 strokes		4,0
charge-air pressure 1.4 Idle regulation	375	8,0-14,0	cm³/1000 strokes		5,5
1.5 Full-speed regulation	1150	39,0-45,0	cm³/1000 strokes		
1.6 Start	100	min. 70,0	cm³/1000 strokes		
1.7 Load-dependent port-closing	-				

2.1 Timing device	n = rev/min	500	•	750	4400	
2.1 Hilling device	mm	500 1,4-2,2(1,		750 3-4,2) 6,0	1100	4.
			1-2,3) (2,0	5-4,2) 0,U	-6,8(5,7 - 7,	1)
2.2 Supply pump	n = rev/min	500	r		1100	
	bar (kgf/cm²)	2,9-3,	5		6,0-6,8	
Overflow delivery	n = rev/min	500	•		1100	
•	cm ³ /10 s	41-83(26-	98)	5	5-138(40-15	3)
2 3 Fuel deliveries					3. Dimen	sions for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	1250 2000	max. 2,0 max. 15			K	_
	1170	min. 15			KF	5,1-5,4
	1150		(37,0-47,0)			
	1100	56,0-59,0	(54.5-60.5)		MS	1,3-1,55
	900	59,0-62,0	(57,5-63,5)	1	svs	2,6
	750 500	E4 E 62 E	(57,0-63,0)			
	500	54,5-62,5	(54,8-62,2)			
switch-off					^ XK	18,8-20,8
				·	B XL	12,1-15,5
Idle stop	350	17.0-26.0	(16,5-26,5)		Observations	
	375	, , , , , ,	(6,0-16,0)			heck ELAB at
	500	max. 4,0		1	375 min-1	ing electro-
End stop	130	min. 70,0			magnet. S	
	300	max. 70,0			delivery outlet "D	blocking
2.4 Solenoid	cut-in voltage				Stroke 1.	

WPP 001/4 CUM 5,9 t

1. Edition

VE 6/12 F 1000 R 225-12 0 460 426 081

Overflow temperature 45°C

DHK: 1 688 901 027; 250 + 3 bar

supersedes CDC company 6 BT-5.9 Case 89 PS / 2000 min⁻¹

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/

Pre-stroke setting

 $mm \pm 0.02 (0.04)$

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgt/cm²)	Difference in delivery cm ³
1.1 Timing device travel	750	3,3-3,7	mm		
1.2 Supply-pump pressure	750	3,5-4,1	bar (kgf/cm²)		
1.3 Full-load delivery with	-		cm ³ /1000 strokes		
charge-air pressure Full-load delivery without	900	47,5-48,5	cm³/1000 strokes		4,0
charge-air pressure 1.4 Idle regulation	375	8,0-14,0	cm³/1000 strokes		5,5
1.5 Full-speed regulation	1050	30,0-36,0	cm ³ /1000 strokes		
1.6 Start	100	min. 40,0	cm³/1000 strokes		
1.7 Load-dependent port-closing	_				

2. Test Spe	cifications	checking values in t	orackets ()			
2.1 Timing device	n = rev/min mm	500 1,1-1,9(0)),8-2,2) (2	750 (,8-4,2)	1000 5,3-6,1(5,0-6	5,4)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	200 0,8-1		500 ,4-3,0	1000 4,5-5,1	
Overflow delivery	n = rev/min cm ³ /10 s	500 41-830) (26-98)		1000 55-138(40-	·153)
2.3 Fuel deliveries		-L			3. Dimen	tor assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press bar (kgf/cm²)	Designation	and adjustment mm
End stop	1100 1090 1060 1050 1000 900 750 500		(28,0-38,0) (43,0-49,0) (45,0-51,0) (44,0-50,0) (33,3-40,7)		K KF MS SVS	- 5,1-5,4 0,9-1,15 1,2
SWICHOU					B XL	18,8-20,8 9,1-12,5
End stop	375 450 200 370	max. 4,0 min. 45,0 max. 50,0	(6,0-16,0)		375 min-1	olocking
2.4 Solenoid	cut-in voltage	· L)		<u> </u>	Stroke 1.5	

WPP 001/4 CTM 5,9 t 1

1. Edition

VE 6/12 F 1100 R 225-13 Testoil-ISO 4113 0 460 426 082

Overflow temperature 45° C

DHK: 1 688 901 027; 250 + 3 bar

supersed#s companyCDC

engine: 6 BT-5.9 142 PS bei

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Pre-stroke setting

0,3

 \pm 0,02 (0,04)

Test Instructions and Test Equipment

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	750	3,4-3,8	mm		
1.2 Supply-pump pressure	750	3,5-4,1	bar (kgf/cm²)		
1.3 Full-load delivery with	-		cm ³ /1000 strokes		
charge-air pressure Full-load delivery without	900	71,5-72,5	cm³/1000 stroķes		4,0
charge-air pressure 1.4 Idle regulation	375	8,0-14,0	cm³/1000 strokes		5,5
1.5 Full-speed regulation	1140	53,0-59,0	cm ³ /1000 strokes		
1.6 Start	100	min. 60,0	cm³/1000 strokes		
1.7 Load-dependent port-closing	-				

2.1 Timing device	n = rev/min	500		750	1100	i
C. F Timming Garage	mm				1100 ,2-6,0(4,9-6	5.3)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	500 2,4-3,			1100 4,8-5,4	307
Overflow delivery	n = rev/min cm ³ /10 s	500 41-83(26	5-98)		1100 55-138(40-	·153)
2.3 Fuel deliveries		1			3. Dimen	for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press bar (kgf/cm²)	Designation	and adjustment mm
End stop	1220 1200 1180 1140 1100 900 750 500	max. 3,0 max. 15,0 min. 15,0 66,5-69,5 70,5-74,5 53,0-61,0	(51,0-61,0) (65,0-71,0) (69,0-75,0) (69,5-75,5) (53,3-60,7)		K KF MS SVS	5,1-5,4 0,9-1,15 1,4
switch-off			1		A XK	20,2-22,2 10,5-13,9
Idie stop End stop	350 375 450 130	20,0-28,0 max. 4,0 min. 60	(19,0-29,0) (6,0-16,0)		375 min-1 24 V pushi magnet. S	ing electronag Start-of-
2.4 Solenoid	240	max. 60			delivery outlet "D Stroke 1.)"

WPP 001/4 CUM 3,9e 1. Edition

VE 4/12 F 1400 R 230 Overflow temperature 45° C

0 460 424 026 DHK: 1 688 901 027; 250 + 3 bar supersedes CDC company: 4BT-3,9

engine: 2800 min-1 107 PS /

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers 0,3

Pre-stroke setting

± 0,02 (0,04)

Test Instructions and Test Equipment

see VDT·W·460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1100	1,8- 2,2	mm	1,0	
•	1100	4,7- 5,3	bar (kgf/cm²)	1,0	,
1.2 Supply-pump pressure	900	69,5-70,5	cm ³ /1000 strokes	1,0	4,0
1.3 Full-load delivery with charge-air pressure Full-load delivery without	500	36,5-37,5	cm ³ /1000 strokes	0	
charge-air pressure 1.4 Idle regulation	375	8,0-14,0	cm ³ /1000 strokes	0	5,5
1.5 Full-speed regulation	1500	44,0-50,0	cm³/1000 strokes	1,0	
1.6 Start	100	min. 40,0	cm³/1000 strokes		
1.7 Load-dependent port-closing	_				

2. Test Spe	cifications	checking values in brackets ()			
2.1 Timing device LDA=1,0 bar	n = rev/min mm	900 0,3-1,1 (0-1,4)		1100 3-2,7)	1250 2,6-3,4 (2,3-	-3,7)
2.2 Supply pump LDA=1,0 bar	n = rev/min bar (kgf/cm²)	500 2,1-2,7			1400 5,9-6,5	
Overflow delivery	n = rev/min cm ³ /10 s	500 (0 bar) 41-83 (26-98)		1400 (1,0 bar) 55-138 (40-153)		
2 3 Fuel deliveries Speed control lever	Rot. speed	Fuel delivery		Charge-air press	3. Dimen	Sions tor assembly and adjustment
End stop switch-off	1650 1620 1590 1500 1400 1100 900 700 * 500	max. 2,0 max. 15,0 min. 15, 64,5-67,5(63,0-69,5(65,0-7),0-68,0(64,5-7),73,5-81,5(73,8-8),0-40	9,0) 1,0) 3,0) 0,5)	1,0 1,0 1,0 1,0 1,0 1,0 1,0 0,4 1,0	K KF MS SVS	- 5,1-5,4 0,9-1,15 3,8 18,8-20,8 9,8-13,2
End stop	375 600 150 380	(6,0-16 max. 4,0 min. 40,0 max. 40,0	6,0)		375 min-1 *LDA-strol Start-of-c	delivery outlet "D"
2.4 Solenoid	cut-in voltage	min. 10 Volt			Stroke 1,6	6 mm

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WPP 001/4 CUM 3,9d 1. Edition

<u>En</u>

VE 4/12 F 1250 R 230-1

Overflow temperature 45° C

supersedes CDC company:

0 460 424 027

DHK: 1 688 901 027; 250 + 3 bar

0,3

angine: 4BT-3.9

107 PS / 2500 min-1

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Pre-stroke setting

 $_{mm}$ ± 0,02 (0,04)

Test Instructions and Test Equipment

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1100	1,8- 2,2	mm	1,0	
1.2 Supply-pump pressure	1100	4,7- 5,3	bar (kgf/cm²)	1,0	
1.3 Full-load delivery with	900	69,5-70,5	cm ³ /1000 strokes	1,0	4,0
charge-air pressure Full-load delivery without	500	36,5-37,5	cm³/1000 stroķes	0	
charge-æir pressure 1.4 Idle regulation	340	8,0-14,0	cm ³ /1000 strokes	0	5,5
1.5 Full-speed regulation	1330	49,0-55,0	cm ³ /1000 strokes	1,0	
1.6 Start	100	min 40 0	cm ³ /1000 strokes		
1.7 Load-dependent port-closing	100	min. 40,0		0	

2. Test Spe	cifications	checking values in brackets ()			
2.1 Timing device _DA=1,0 bar	n = rev/min mm	900 0,3-1,1 (0-1,4)	1100 (1,3-2,7)	1200 2,4-3,2 (2,1	-3,5)	
2.2 Supply pump _DA=1,0 bar	n = rev/min bar (kgf/cm²)	500 2,1-2,7	1250 5,4-6,0			
Overflow delivery	n = rev/min cm ³ /10 s	500 (0 bar) 41-83 (26-98)	•	1250 (1 55-138 (4	,0 bar) 0-153)	
2.3 Fuel deliveries	<u></u>			3. Dimen	sions for assembly and adjustment	
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air pres bar (kgf/cm²)	s. Designation	mm	
End stop switch-off	1500 1480 1430 1330 1250 1100 900 700 * 500	max. 2,0 max. 15,0 min. 15,0 (47,0-57 65,5-68,5 (64,0-70 66,5-69,5 (65,0-71 (67,0-73 67,0-68,0 (64,5-70 73,5-81,5 (78,8-81 (34,0-40	,0) 1,0 ,0) 1,0 ,0) 1,0 ,5) 0,4 ,2) 1,0	K KF MS SVS A XK B XL	5,1-5,4 0,9-1,15 3,8 18,8-20,8 8,4-11,8	
End stop	340 500 150 380	(6,0-16 max. 4,0 min. 40 max. 40	,0)	Observations Shutoff check ELAB at 340 min-1 *LDA-stroke 6,7 mm Start-of-delivery blocking outlet "A" Stroke 1,66 mm		
2.4 Solenoid	· cut-in voltage	min. 10 Volt rated voltage 12 V.		Julione 1,0		

WPP 001/4 CUM 3,9c 1. Edition

Festoil-ISO 4113

VE 4/12 F 1150 R 231-1

Overflow temperature 45° C

En

supersedes

CDC

0 460 424 029

DHK: 1 688 901 027; 250 + 3 bar

0,3

company:

4BTA-3.9

engine:

114 PS /

2300 min⁻¹

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Pre-stroke setting

 \pm 0,02 (0,04)

Test Instructions and Test Equipment

see VDT-W-460/.

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	850 850	4,0-4,4 5,6-6,2	mm bar (kgf/cm²)	1,0 1,0	
1.3 Full-load delivery with charge-air pressure	850 500	85,5-86,5 63,5-64,5	cm³/1000 strokes	1,0 0	4,0
Full-load delivery without charge-air pressure 1.4 Idle regulation	375	8,0-14,0	cm ³ /1000 strokes	0	5,5
1 5 Full-speed regulation 1 6 Start	1220 100	62,5-68,5 min. 60,0	cm ³ /1000 strokes cm ³ /1000 strokes	1,0 0	
1 7 Load-dependent port-closing	-				

2. Test Spe	cifications	checking values in brackets ()	
2.1 Timing device LDA=1,0 bar	n = rev/min mm	500 1,8-2,6 (1,5-2,9)	1100 (3,5-4,9)	1200 5,2-6,0 (4,9-6,3)
n = rev/min bar (kgt/cm²) Overflow delivery n = rev/min cm³/10 s		500 4,0-4,6		1150 6,9-7,5
		500 (0 bar) 41-83 (26-98)		1150 55-138 (40-153)
2 3 Fuel deliveries		1		3. Dimensions

2.3 Fuel deliveries				3.
Speed control lever	Rot. speed rev/min	Fuel delivery Cha	rge-air press. (kgt/cm²)	Des
End stop	1320	max. 2,0	1,0	
	1300	max. 15,0	1,0	İ
	1260	min. 15,0	1,0	1
	1220	(60,5-70,5)	1,0	- 1
	1150	76,0-79,0 (74,5-80,5)	1,0	
	1000	79,5-82,5 (78,0-84,0)	1,0	
	850	(83,0-89,0)	1,0	1
	700 *	79,5-80,5 (77,0-83,0)	0,35	1
	500 500	90,0-98,0 (90,3-97,7)	1,0	
switch-off				
Idia stop	350	24,0-32,0 (23,0-33,0)		Obs
	375	(6,0-16,0)		SI
	450	max. 4,0		3
End stop	130	min. 60		*!
	230	max. 60		Si
2.4 Solenoid	cut-in voltage	min. 10 Volt		St
		rated voltage 12 V	1	1

Designation	tor assembly and adjustment mm
ĸ	-
KF	5,1-5,
MS	1,1-1,
svs	2,7
VI.	40.0.00.2
A XK	18,8-20,8
^B XL	12,4-15,8

875 min-1 LDA-stroke 6,6 mm tart-of-delivery locking outlet "A" troke 1,55 mm

46

WPP 001/4 CUM 5,9t3 1. Edition

VE 6/12 F 1400 R 232 Overflow temperature 45° C

0 460 426 077

DHK: 1 688 901 027; 250 + 3 bar

supersedes T

company: CDC

engine: 6BT-5.9

163 PS / 2800 min-1

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

mm

Test Instructions and Test Equipment

Pre-stroke setting

0,3

2. Test Specifications checking values in brackets (

cut-in voltage

± 0,02 (0,04)

see VDT·W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³	
1.1 Timing device travel	900	4,2-4,6	mm	1,0		
1.2 Supply-pump pressure	900	4,1-4,7	bar (kgf/cm²)	1,0		
1.3 Full-load delivery with	900	67,0-68,0	cm ³ /1000 strokes	1,0	4,0	
charge-air pressure Full-load delivery without	500	30,5-31,5	cm³/1000 stroķes	0		
charge-air pressure 1.4 Idle regulation	375	8,0-14,0	cm ³ /1000 strokes	0	5,5	
1.5 Full-speed regulation	1500	49,0-55,0	cm ³ /1000 strokes	1,0		
1.6 Start	100	min. 45	cm ³ /1000 strokes	0		
1.7 Load-dependent port-closing	-					

2.1 Timing device	n = rev/min	500	900	1100
LDA=1,0 bar	mm	0,4-1,2 (0,1-1,5)	(3,7-5,1)	5,5-6,3 (5,2-6,6)
2.2 Supply pump LDA=1,0 bar	n = rev/min bar (kgt/cm²)	500 2,4-3,0		1400 6,1-6,7
Overflow delivery	n = rev/min cm ³ /10 s	500 (0 bar) 41-83 (26-98)		1400 (0 bar) 55-138 (40-153
2.3 Fuel deliveries				3. Dimensions for assembly
Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm²)	Designation and adjustment mm
End stop	1650 1620 1590 1500 1400 1100 900 700 * 500	max. 3,0 max. 15,0 min. 15,0 (47,0-57,0) 61,5-64,5 (60,0-66,0) 64,5-67,5 (63,0-69,0) (64,5-70,5) 59,0-60,0 (56,5-52,5) 65,5-73,5 (65,8-73,2) (28,0-34,0)	1,0 1,0 1,0 1,0 1,0 1,0 0,5 1,0	K KF 5,1-5,4 MS 1,2-1,45 SvS A XL 20,2-22,2 B XL 10,2-13,6
Idle stop End stop	350 375 450 300 480	18,0-30,0 (19,0-29,0) (6,0-16,0) max. 4,0 min. 55 max. 55		Observations Shutoff check ELAB at 375 min-1 *LDA-stroke 6,7 mm Start-of-delivery

2.4 Solenoid

rated voltage 12 V.

min. 10 Volt

blocking outlet "D"

Stroke 1.1 mm

Test Specifications Distributor-type **Fuel-injection Pumps**

WPP 001/4 CUM 5,9 t 2

1. Edition

VE 6/12 F 1250 R 232-1 0 460 426 078 DHK: 1 688 901 027; 250 + 3 bar

Overflow temperature 45° C

supersedes companyCDC

engine: 6 BT-5.9

163 PS / 2500 min⁻¹

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0,3

mm $\pm 0,02 (0,04)$

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	900	3,9-4,3	mm	1,0	
1.2 Supply-pump pressure	900	3,7-4,3	bar (kgf/cm²)	1,0	
1.3 Full-load delivery with	900	66,0-67,0	cm ³ /1000 strokes	1,0	4,0
charge-air pressure Full-load delivery without	500	30,5-31,5	cm³/1000 strokes	0	
charge-air pressure 1.4 Idle regulation	360	8,0-14,0	cm³/1000 strokes	0	5,5
1.5 Full-speed regulation	1330	50,5-56,5	cm³/1000 strokes	1,0	
1.6 Start	100	min. 45	cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-				

2. Test Spec	ifications	3 checking values in bi	rackets ()					
2.1 Timing device	n = rev/min	700		900	1100			
LDA = 1,0 bar	mm	1,6-2,4(1,3	3-2,7) (3	,4-4,8)	5,3-6,1(5		4)	
2.2 Supply pump	n = rev/min	350		700	1100			
LDA = 1,0 bar	bar (kgf/cm²)	1,2-1,8	3 2,	,8-3,4	4,5-5	5,1		
Overflow delivery	n = rev/min cm ³ /10 s	500 (46-83 ((0 bar) (26-98)			0 (1,0 138 (40		
2.3 Fuel deliveries					3. D	imens	Sions for assembly	
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air p bar (kgf/cm²		ation	and adjustment	
End stop	1550 1470	max. 2,0 max. 15,0		1,0	к		-	
•	1430	min. 15,0		1,0	К	F	5,1-5,4	
I	1330		(48,5-58,5	5) 1,0	- M	S	1,2-1,45	
!	1250	63,5-66,5	(62,0-68,0)		S'	vs	0.6	
. !	1100	64,0-67,0	(62,5-68,5 (63,5-69,5	5) 1,0 5) 1,0		73	0,0	
. 1	700*	60,0-61,0	(57,5-63,5	5) 0,5				
	500	67.5-75.5	(67.8-75.2	1,0				
switch-off	500		(67,8-75,2 (28,0-34,0	0	A	XK	20,2-22,2	
,					В	XL	9,0-12,4	
idle stop	360		(6,0-16,0))	Observa Shu1		heck ELAB at	
	340	max. 4,0				min-1	IECK LLAD GE	
End stop	300	min. 55			1 1		ke 7,0 mm	
	480	max. 55			Star	Start-of-delived		
2.4 Solenoid	cut-in voltag	min. 1	10 Volt			Stroke I.I IIII		

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 31.7 g 2

1. Edition

PE 8 ZWM 160 / 100 RS 2001-2

Komb. -- Nr. 0 406 008 024

8-1 -2 - 6 - 3 - 4 - 5 - 7 0-45-90-135-180-225-270-315° $\stackrel{+}{-}$ 0,5° ($\stackrel{+}{-}$ 0,75°)

Replaces

Firm: MTU

8 V 396-03 Engine:

960 kW

See page 2

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke 2,5-2,6 (2,45-2,65)

Rotational	Control-	Fuel delivery	Difference Cy	Fuel delivery	Spring pre-tension
speed min · I			in fuel delivery cm ³ /1000 strokes	Checking values cm ³ /1000 strokes	(torque-control valve)
1	2	3	4	5	
1000	18,0	622-636	20 (30)	619-639	
1000	9,0	220-248	28 (42)	215-253	
300	9,0	104-128	16 (24)	99-133	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated	speed	4	Medium r	ated spe	ed	Lower ra	ted spee	d	Torq	ue control
Control lever deflection degrees	mm min ' 2	Control- rod travel mm min 1 3	Control lever flection degrees 4	min ¹ 5	Control- rod travel mm 6	Control lever de- flection degrees 7	min · ¹ 8	Control- rod travel mm 9		Control- rod travel mm
i										
-	-	-	-	_	-	-	_	-	-	-
			.1]	i]	ı	j

Torque control travel a =

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gove	d delivery ernor control lever I temperature 40°)	Control rod stop at speed	Fuel-de charact		Startin deliver	
min ' 1	cm³/1000 strokes 2	min 1 3	min ¹ 4	cm³/1000 strokes 5	min ' 6	cm³/1000 strokes 7
Adjus	t according to	- the engine records.	-	-	-	-

Checking values in brackets

7.86

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung

Dy Robert Bosch GmbH. D-7 Stuftgart 1, Postfach 50. Printed in the Federal Republic of Germany Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH.

Note:

Fuel-injection pump has special control rod for partial cutoff of particular cylinders.

"O" control-rod travel corresponds to 1.0 mm clearance of the control-rod canister from the stop plate at the end face.

Testoil-ISO 4113

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 31,7 h1

1. Edition

PE 8 ZWM 160/100 RS 2006 Komb.-Nr. 0 406 008 025

KOMD.-Nr. U 406 UU8 U25

8- 1- 2- 6 - 3 - 4 - 5 - 7 $0-45-90-135-180-225-270-315^{\circ} \pm 0,5^{\circ} (\pm 0,75^{\circ})$

Replaces

Firm: MTU

Engine: 8 V 396-03

960 kW

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

2,5-2,6
Port closing at prestroke (2,45-2,65)

mm (from BDC) cv1.8

Rotational	Control-	Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min '	mm	cm³/1000 strokes	cm³/1000 strokes	cm ³ /1000 strokes	
1	2	3	4	5	
1000	18,0	622-636	20 (30)	619-639	-
1000	9,0	220-248	28 (42)	215-253	
300	9,0	104-128	16 (24)	99-135	
		1			

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated	d speed		Medium r	ated spe	ed	Lower ra	led spee	d	Torq	ue control
Control lever deflection degrees 1	mm min ¹ 2	Control- rod travel mm min 1 3	Control lever flection degrees 4	min 1	Control- rod travel mm 6	Control lever de- flection degrees 7	min ¹ 8	Control- rod travel mm 9	min 10	Control- rod travel mm 11
-	-	-	-	-	-	-	-	-	-	_

Torque control travel a =

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gove	d delivery ernor control lever I temperature 40°)	Control rod stop at speed	Fuel-de charact		Startin deliver	
min I 1	cm³/1000 strokes 2	min-1 3	min 1 4	cm³/1000 strokes 5	min ¹	cm ³ /1000 strokes 7
Adjus	t according to	the engine records.				

Checking values in brackets

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung.

- by Robert Bosch GmbH. D-7 Stuttgart 1. Postfach 50. Printed in the Federal Republic of Germany Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH.

7.86

Note:

"O" control-rod travel corresponds to 1.0 mm clearance of the control-rod canister from the stop plate at the end face.

IHC 13,4 a VDT-WPP 001/4 1. Edition

En

PES 6 P 110/420/3 LS120 EP/RSV 300-800

P2/319D,337D P2/320D,322D,327D,324,331

IHC

300-1050

Test details see page 4! 300- 950

300-1100 P2/321

DTJ 817 B

P2/323D,328D P0/...

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2.0 + 0.1

mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel	Fuel delivery	Difference cm³/ 100 strokes	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control vaive)
<u> </u>	2	3	4	2	3	6
600	8	6,9 - 7,3	0,4			
600 600	6 12	2,5 - 3,7 13,7 -15,0				
600 200	15 6	19,4 -20,7 4,7 - 5,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	deflection of control mm mm rev/min			ediate rated	speed 6	Control- lever deflection in degrees 7	tev/min	r rated speed Control rod travel mm 9	3 To	crque control Control rod travel mm 11
)		see	page 2	2					
(2a)	ĺ									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

49	ill-load stop	Rotational- speed limitat		uel delivery naracteristics	Starting t	uel delivery 5	(4a) Idi	e stop
rev/min	cm³/1000 strokes	Note changed to) rev/min 3	rev/min	cm³/1000 strokes 5	rev/min	cm ⁴ /1000 strokes 7	rev/min 8	Control rod travel mm
		see page 3						

Checking values in brackets

								THC	13,4	a -2-
Upper rated s	peed		Intermediate	e rated spe	eed	Lower rate	d speed		St. d. a. a.	
Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		leeve travel control travel
lever	tev/min	mm	lever	rev/min	mm	lever	rev/min	mm	rev/min	mm
1	2	3	4	5	6	17	8	9	10	111
300-800	P 2/3	19 Dr P	0/319	Dr,	P 0/337	DR				
ca.35,5	800 860	16,0 11,7	*			ca.18		5,5 20 - 21	780	0
	920 330	5,8 3,711,6		,				5,2 -5 ,8		0,3-0,5
		3,1- 5,2 0 - 2	**				600	0 - 2	400	IJ , ೞ-1 , Ϣ
300-1050 ca.43	1050 1120 1170 1130 1200	20 Dr, P 16,0 10,6 6,0 8,4-10,8 3,7-6,5 0 - 2	* * **	DR		ca.20	300 5	U - ZI		0 0,2-0,4 0,2-0,4
300-1100 ca.44	1100 1160 1210 1180 1250	11,4	321 R * **			ca.19	150 2 300 5 450 2	6,0 0 - 21 6,7-6,3 9-4,4 0 - 2	- Ajust engin requi	e as
300-1050 ca.43	1050 1120 1170 1130	10,6 6,0 8,4-10,6	2/327DF * **	₹,	P 0/	ca.20	300 5 450 3	,7-6,3		0 0,3-0,5 0,4-0,6
300 - 95 ca. 40	0 P 2, 950 1020	/323 Dr,l 16,0 10,6 *		Dr, .	.P 0/		300 150 .:	6 , 0 011	930	(1
	1150	6,9 9,5-11,6 1,8-4,2 * 0 - 2	*				450 2	0_1 1		,1-0,3
300-1050 ca.43	1050 1120 1160 1130	324 R,P (16,0 10,8 7,0 8,2-10,8 4,0-5,6 * 0-2		P 2,	/331 R	,	150 20 300 5 450 3	6,0 0 - 21 ,7-6,3 ,0-4,4 0 - 1	-	-

without auxiliary spring

with auxiliary spring

C. Settings for Fuel Injection Pump with Fitted Governor

engine p Full-load Control-re Test oil te	delivery	Rotational-speed limitation	Fuel deli	very characteristics	Starting fuel delivery Idle switching point	Governor
rev/min	cm ³ /1000 strokes	rev/min	rev/min 4	cm ³ /1000 strokes 5	rev/min cm ³ /1000 strokes	rev/min mm
780	140 - 142	800: 0,1-0,3	500	165 - 169	100 mind. 20	P2/319 DF
1030	156 - 158	1050:0,1-0,3	500 500	213 - 217 107 - 111	100 mind. 18,5	P2/320 DR P0/320 DR
1080	180 - 182	1100:0,1-0,3	500	138 - 142	100 mind. 18,5	P2/321 R P0/321 R
1030	128 - 130	1050:0,1-0,3	500	174 - 178	100 mind. 20	P2/322 DR
930	138 - 140	950:0,1-0,3	500	189 - 193	100 mind. 20	P2/323 DR
1030	105 - 107	1050:0,1-0,3			100 mind. 20	P2/324 DR P0/324 DR
1030	135 - 137	1050:0,1-0.3	500	176 - 180	100 mind. 20	P2/327 DR
930	139 - 141	950:0,1-0,3	500 500	189 - 193 140 - 144	100 mind.18,5	P2/328 DR
030	158 - 160	1050:0,1-0,3	500	110 - 114	100 mind.18,5	P2/331 R

When checking (column 3 and 5) increase by 1 cm³!

Test with nozzle 0 681 443 014 - EFEP 182 or complete nozzle-holder assembly 0 681 343 009 - EF 8511/9a and overflow valve 1 417 413 025 - EPVE 176 P 2 Z, supply pressure 1.5 kp/cm 2 (flushing).

Refer to BMP 115/9 for connection parts and modified port-closing measuring device.

- Set start of delivery on prestroke.
 (Conversion of device 1 688 130 085 EFEP 388 A and plug on drive end)
 - On outlet 1 start of delivery, check timing pin at SP-flange to see whether pressing in the pin causes it to engage in the camshaft. Move and secure flange if necessary.
- Set fuel delivery section A of test-specification sheet - (refer to BMP for connection parts)
- Test governor Section B without manifoldpressure compensator
- 4. Set full-load delivery Section C, Column 1-2 when equipped with manifold-pressure compensator, set larger full-load delivery with manifold-pressure compensator removed.
- 4.1 Correct fuel-delivery characteristics Column 4-5 with torque-control retainer. Check whether full-load delivery unchanged.
- 4.2 Rotational-speed limitation Column 3 at upper rated speed, control-rod travel must be 0.1 -0.3 mm less than with full-load delivery as per Column 1-2.
- 4.3 Pre-adjust removed manifold-pressure compensator: Unscrew stop screw in diaphragm housing. Start of adjustment 0.1 kp/cm², end of adjustment 0.4 kp/cm²; adjust if necessary by way of washers beneath diaphragm spring.

Set manifold pressure 0.7 kp/cm². Use depth gauge to measure immersion depth of stop pin in manifold-pressure compensator without seal: Set immersion depth of 15.7 \pm 0.1 mm at screw and lock nut and secure with tab washer.

Limit travel of stop pin between 0 and 0.5 kp/cm² = approx. 4.1 mm at stop screw of diaphragm housing.
Make sure all parts move freely when carrying out adjustment!

- 4.4 Attach manifold-pressure compensator. With stop screw in diaphragm housing set smaller full-load delivery as per Column 4-5 (= Fuel delivery on induction)
- Check starting control-rod travel as per Column 6-7 (without manifold pressure).

4

VDT-WPP 001/4 IHC 13,4 b

2. Edition

En

PES 6 P 110/420/3 LS 137 EP/RSV 300-1100 P0/332D,335,364,380 supersedes 12.70

300-1050 PO/333D,334,350,

company I H C

Test details see page 4!-

334D, 350D, 360D, 363D 300- 950 PO/336D 300- 800 PO/337D

engine DTJ 817 B

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

estoil-ISO 4113

2,0 + 0,1

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-contiol walve)
rev/min 1	mm 2	cm³/100 strokes	cm³/ 100 strokes 4	mm 2	cm³/100 strokes	mm 6
1000	8	9,8 - 10,4	0,5			
600 600 600	6 12 15	5,0 - 6,2 17,7 - 19,4 23,9 - 26,1				
200	6	5,4 - 6,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	er rated speed		Interm	Intermediate rated speed			Lower rated speed			(3) Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	• In degree			rev/min	Control rod travel mm	rev/min	Control rod travel mm		
			se	e page	e 2							
(2a)												

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational- speed limitat	Ga Fuel delivery characteristics		Starting t	luel delivery 5	4a) Idle stop	
Test oil te rev/min 1	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min	rev/min	cm³/1000 strokes	rev/min	cm ⁴ /1000 strokes	rev/min	Control rod travel mm
		see page 3						
							ç	

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.72

Testoil-ISO 4113

1	2	3	4	5 6	7	8	9	10 11
300-105	50 PO/3	32 Dr, 334	DR, 350	DR, 363 DR				
ca.43	1050 1120 1170	16,0 10,6 6,0	*		ca.20	300 150 300 450 640	6,0 20 - 21 5,7-6,3 3,1-4,5 0 - 2	1030 0 400 0,2-0,4
300-105	50 PO/33	33DR						
ca.43	1050 1120 1170	16,0 10,6 6,2	*		ca.20	300 150 300 450 640	6,0 19 - 21 5,7-6,3 3,0-4,4 0 - 2	1030 0 400 0,4-0,6
300-105	50 PO/33	34 R , PO	/350 R					
ca.43	1050 1120 1170	16,0 10,6 6,0	*		ca.20	300 150 300 450 630	6,0 20 - 21 5,7-6,3 3,0-5,4 0 - 2	1030 0 500 0 360 1,2-1,8
300-110	10 PO/33	35R, 364R,	380					
ca.44	1100 1160 1210	16,0 11,2 6,6	*		ca.19	300 150 300 400	5,5 20 - 21 5,2-5,7 0 - 2	 Ajust on engine as required
300-950	P0/336	5 DR						
ca.40	950 1020 1070	16,0 10,6 6,2	*		ca.20	300 150 300 450 630	6,0 20 - 21 5,7-6,3 2,9-4,4 0 - 2	930 0 400 1,6-1,8
300-800	P0/337	'DR				000	0 2	
ca.35	800 860 920	16,0 11,7 5,8	*		ca.18	300 150 300 450 600	5,5 20 - 21 5,2-5,8 2,3-3,8 0 - 2	780 0 550 0,3-0,5 400 0,8-1,0
300-105	0 PO/36	O DR						
ca.43	1050 1120 1170	16,0 10,5 6,0	*		ca.20	300 150 300 450 630	6,0 20 - 21 5,7-6,3 3,0-4,5 0 - 2	1300 0 400 0,1-0,3

C. Settings for Fuel Injection Pump with Fitted Governor

engine po Full-load o Control-ro Test oil tei	telivery	Rotational-speed limitation	Fuel delivi	ery characteristics	Starting to	uel delivery g point	Governor Idle speed/stop U/min cm³/1000
rev/min	cm ² 71000 strokes	rev/min	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes	rev/min 1 mm 8
1080	162 - 164	1125:0,5-1.5	600	205 - 209	100	mind.18,5	PO/332R
600	123 - 127	*	1200	3 mm RW			325 = 25-35
1030	138 - 140	1075:0,5-1,5	800	165 - 169	100	mind.18,5	PO/333DR
		*	1155	3 mm RW			1 mm vor Stop
1030	147 - 149	1075:0,5-1,5			100	mind.18,5	PO/334R
		*					325 = 25-35
1030	151 - 153	1075:0,5-1,5	800	172 - 176	100	mind.18,5	PO/334DR
800	123 - 127	*	1145	3 mm RW			325 = 25-35
1080	192 - 194	1125:0,5-1,5	-		100	mind.18,5	PO/335R,380
		*					325 = 25-35
1080	109 - 113		1200	3 mm RW			
930	156 - 158	975:0,5-1,5	700	203 - 207	100	mind.18,5	PO/336DR
700	150 - 154	*	1035	3 mm RW			1 mm vor Stop
78 0	151 - 153	825:0,5-1,5	600	185 - 189	100	mind.18,5	PO/337R
		*	870	3 mm RW			1 mm vor Sto
1030	113 - 115	1075:0,5-1,5	350R: 1135	3 mm RW	100	mind.18,5	PO/350R PO/350DR
		*	350DF				325 = 25-35
1030	158 - 160	1075:0,5-1,5	700	203 - 207	100	mind.18,5	PO/360DR
700	147 - 151	*	1155	3 mm RW			325 = 25-35
			<u></u>				PO/363DR
1080	192 - 194	1125:0,5-1,5			100	mind.18,5	·
1080	5,4mm RW *	*	1200	3 mm RW			PO/364 R

Test with nozzle 0 681 443 014 - EFEP 182 or complete nozzle-holder assembly 0 681 343 009 - EF 8511/9a and overflow valve 1 417 413 025 - EPVE 176 P 2 Z, supply pressure 1.5 kp/cm² (scavenging).

Connecting components and modified start-of-delivery measuring device, see VDT-BMP 115/9.

Adjust start of delivery at prestroke.
 (Conversion of the device 1 688 130 085 - EFEP 388 A and plug on drive side)

At start of delivery, exhaust port 1, check device (timing pin) at FP flange to see whether the pin latches into the camshaft when it (the pin) is pressed in. If necessary, reposition flange and secure.

- Adjust fuel delivery Section A of the test sheet (for connecting components, see VDT-BMP 115/9).
- 3. Test governor Section B preadjustment without manifold-pressure compensator (for special adjustment, see Points 4.2 and 4.3)
- 4. Section C, adjust full-load delivery column 1-2 for equipment with manifold-pressure compensator, set higher full-load delivery when manifold-pressure compensator disassembled (note control-rod travel (in mm) for Point 4.2).
- 4.1 Fuel-delivery curve column 4-5, correct with torque-control spring retainer. Check whether full-load delivery is unchanged.
- 4.2 Engine-speed limitation: at maximum full-load speed + 25 r/min., control-rod travel must be 0.5 1.5 mm less than at full-load delivery given in column 2. Adjust maximum-speed stop screw.
- 4.3 High idle: test according to column 4-5; to obtain the specified control-rod travel, alter pretension of the rocker if necessary (tolerance ± 10 r/min). Check whether engine-speed limitation (Point 4.2) is unchanged.
- 4.4 Preset manifold-pressure compensator while in disassembled state: (for manifold-pressure compensator ..004 and ..007)
 Screw out stop screw from diaphragm housing.

Governor ...P0/332, /335 ...P0/336/360,/364 $\frac{380}{0.14-0.27}$ Start of adjustment =0.3 kp/cm² Start of adjustment =0.15 kp/cm² adjust as required by pushing beneath the diaphragm spring.

At 1.5 kp/cm² charge-air pressure, set an immersion depth of 15.75 + 0.1 mm (contact surface of stop pin up to end face without gasket). Pretension of the spring, measured at the contact surface of the stop pin, must be 6.15 ± 0.65 kp.

If readjustment of the immersion depth is necessary, adjusting screw and lock nut must be adjusted simultaneously so that spring pretension of the elastic element is maintained.

Limit travel of the stop pin to between $0 - 1.5 \text{ kp/cm}^2$, charge-air pressure = 5.1 - 5.6 mm at the stop screw of the diaphragm housing.

Make sure that all components move freely when adjusting the charge-air pressure!

4.5 Mount manifold-pressure compensator.

Using stop screw at top in diaphragm housing, adjust minimum full-load delivery in accordance with column 1-2 (fuel delivery under induction operation).

- 5. Test start control-rod travel column 6-7 (without charge-air pressure).
- 6. Adjust idle stop/shutoff stop column 8.

H24

estoil-ISO 4113

Test Specifications Fuel Injection Pumps (A) and Governors

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VDT-WPP 001/4 IHC 9,4b Edition

En

PESV 8 P 100/320RS9 EP/RSV 300/1225 P0/341 D

300-1150 P0/343,346D 300-1300 P0/344,359 300-1200 P0/345D

company engine

supersedes

IHC DV 573..

1.71

300-1250 P0/348D,362D
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8 + 0,1

rnm (from BDC)

Instruction:

Test details see page 4!

Rotational speed rev/min	Control rod travel	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve)
1000	10	9,0-9,6	0,4		3	6
600 600	6 12	1,3-2,3 10,7-12,2				
600 200	15 6	11,4-12,9 4,1- 5,3			+	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1) Uppe	er rated speed		Interme	Intermediate rated speed			Lower rated speed 3 Torque control				
Degree of deflection	travel	Control rod travel				Control- lever		Control rod travel		Control rod travel	
of control lever	mm 2	mm rev/min	4	5	6	deflection in degrees	rev/min	mm 9	rev/min	mm 11	
		<u> </u>	1			<u> </u>			<u> </u>		
									1		
	ļ		see	page	2	1					
2 a				page	-						

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop emp=40°C (104°F)	Rotational- speed limitat		uel delivery naracteristics	Starting I	uel delivery 5	4a) Idle stop	
rev/min	cm³/1000 strokes	changed to) rev/min	rev/min	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
		see page	3					

Checking values in brackets

Degree of deflection of travel of control red deflection of control red red red red red red red red red red	Upper rated	speed		latamada			<u> </u>	···			
	Degree of deflection	speed		Degree of	e rated sp	Control rod	Degree of	d speed	Control rod	Sliding Torque	sieeve travei control trave
	of control lever	rev/min		of control	rev/min		of control	sau/min			
Ca. 66 1225 16,0 1320 12,1 1450 5,1 16,0 1280 10,7 1400 3,8	1	1	1	l l	1	1	1 .	l .	1	1	1
1320 12,1	300-122	5 PC/3	41 D					•	•	· 	
1450 5,1 600 0 - 0, 600 0 - 0, 1130 0 600 0 - 1, 600 0 - 0, 600 0 - 1, 600 0 - 0, 600 0 - 1, 600 0	ca.66		16,0	<u></u>	Ī		ca.35	300	6,0	1200	0
Ca. 62				*						600	0 - 0,
1280	300-115 ca.62						ca. 33	300	6.0	1130	0
300-1300 P0/344, 359 5a.69		1280	10,7	*					0,0	ł	1
Ca. 69 1300 16,0 10,3 1540 2,7 2,8 2,8 2,8 2,8 300 6,0 1180 0 600 0,3-0, 600 0,5-0, 600 0,5-0, 600 0,5-0, 600 1230 0,5-0, 600 1400 9,0 ** 600 6,0 1230 0 6,0 1230 0 6,0 1400 9,0 ** 600 6,0 1230 0 6,0 1230 0 6,0 1400 9,0 ** 600 6,0						<u>.</u>					
Ca. 69	300-130	0 PO/3	44, 359	- 	ł, , , , , , , , , , , , , , , , , ,	<u> </u>		Ll	<u> </u>		·
1540 2,7 300-1200 P0/345 D	ca.69		16,0				ca.35	300	6,0	<u> </u>	<u> </u>
Ca. 37 300 6,0 1180 0 600 0,3-0, 1180 0 60		1540	2,7	*							
1330 10,8	300-120 ca.67	1200	16,0				ca.37	300	6.0	11180	0
00-1150 P0/346 D a.66			10,8	*					.,.		
a.66									···-		
1320 9,3 1440 2,6 * 600 0,5-0,1 00-1250 P0/348 D, 362D a.66 1250 16,0 1400 9,0 * ca.35 300 6,0 1230 0	300 -11 50) PO/34	46 D 	· · · · · · · · · · · · · · · · · · ·	-						
1440 2,6 600 0,5-0,1 600 0,5-0,1 00-1250 PO/348 D, 362D a.66 1250 16,0	ca.66		16,0 9.3	*			ca.37	300	6,0	1130	0
a.66 1250 16,0			2,6							600	0,5-0,7
a.66 1250 16,0											
a.66 1250 16,0											
a.66 1250 16,0	300-1250	P0/3/	18 D 362D			-					
1400 9,0 *					1		1 1			 1	
1500 2,8		1400	9,0	*			ca.35	300	6,0	i i	
		1500	2,8					1		600	J,Z-U,4
		L								1	.
		$\neg \neg$					 	T	1		
										•.	
											į

C. Settings for Fuel Injection Pump with Fitted Governor

IHC 9,4 b

①

1	Full-load Control rod Test oil ten		Rotational-speed limitation		ery characteristics	idle switchin		Governor Idle speed/stop U/min cm³/1000
900 47,5-51,5 * **(VH ca.61°) 350 3,, RW 300 = 1130 79,5-81,5 1175:0,5-1,5 800 93,5-96,5 100 14,5-16,5P0/3 800 53,5-57,5 * **(VH ca.57°) 1260 3 mm RW 300 = 1280 98 - 100 1325:0,5-1,5 1430 3 mm RW 100 14,5-16,5P0/3 **(VH ca.64°) 300 = 1180 70,5-72,5 1225:0,5-1,5 850 84,0-87,0 100 14,5-16,5P0/3 **(VH ca.61°) 1320 3 mm RW 100 14,5-16,5P0/3 1130 67,5-69,5 1175:0,5-1,5 800 85,0-89,0 100 14,5-16,5P0/3 **(VH ca.661°) 1320 3 mm RW 100 14,5-16,5P0/3 1 mm in of st 1230 94,5-96,5 1275:0,5-1,5 900 110-113 100 14,5-16,5P0/3 1280 98 - 100 1325:0,5-1,5 900 110-113 100 14,5-16,5P0/3 1280 98 - 100 1325:0,5-1,5 1375 3 mm RW 300 = 1 1280 98 - 100 1325:0,5-1,5 1430 3 mm RW 300 = 1						1 1	7)	1 + 1
1130	1205	85,5-87,5	1250:0.5-1.5	300	98 - 101	100	14,5-17,5	50/341D
800 53,5-57,5 ** **(VH ca.57°) 1260 3 mm RW 300 = 1280 98 - 100 1325:0,5-1,5	900	47,5-51,5			3,, RW			300 = 10 - 22
1280 98 - 100 1325:0,5-1,5 1430 3 mm RW 100 14,5-16,5 P0/3 300 =	1130	79,5-81,5	1175:0,5-1,5	800	93,5-96,5	100	14,5-16,5	PO/343D
1280 62 - 66	800	53,5-57,5	* **(VH ca.57°)	1260	3 mm RW			300 = 10 - 22
1180	1		*		3 mm RW	100	14,5-16,5	P0/344
**(VH ca.61°) 1320 3 mm RW 100 14,5-16,5 P0/3 1130 67,5-69,5 1175:0,5-1,5 800 85,0-88,0 100 14,5-16,5 P0/3 1 mm in of st 1			**(VH ca.64°)) 				300 = 10 - 22
1130 67,5-69,5 1175:0,5-1,5 800 85,0-88,0 100 14,5-16,5P0/34 1230 94,5-96,5 1275:0,5-1,5 900 110-113 100 14,5-16,5P0/34 900 56,0-60,0 * **(VH ca.62°) 1375 3 mm RW 300 = 1 1280 98 - 100 1325:0,5-1,5 1430 3 mm RW 300 = 1 1280 83,5-85,5 1275:0,5-1,5 1430 3 mm RW 300 = 1	1180	70,5-72,5	*	1000		100	14,5-16,5	P0/345D
1230 94,5-96,5 1275:0,5-1,5 900 110-113 100 14,5-16,5 P0/34 1280 98 - 100 1325:0,5-1,5 1430 3 mm RW 300 = 1 1280 83,5-85,5 1275:0,5-1,5 1430 3 mm RW 300 = 1 1280 83,5-85,5 1275:0,5-1,5 1430 3 mm RW 300 = 1 1280			((((((((((((((((((((1 mm in front of stop
1230 94,5-96,5 1275:0,5-1,5 900 110-113 100 14,5-16,5P0/36 900 56,0-60,0 * **(VH ca.62°) 1375 3 mm RW 300 = 1280 98 - 100 1325:0,5-1,5 1430 3 mm RW 300 = 1330 83,5-85,5 1275:0,5-1,5 1	1130	67,5-69,5				100	14,5-16,5	PO/346D
900 56,0-60,0 * **(VH ca.62°) 1375 3 mm RW 300 = 3 1280 98 - 100 1325:0,5-1,5 1280 55 - 59 * **(VH ca.64°) 3 mm RW 300 = 1				1320	3 mm RW			1 mm in front of stop
**(VH ca.62°) 1280 98 - 100 1325:0,5-1,5 1280 55 - 59 * **(VH ca.64°) 1330 83,5-85,5 1275:0,5-1,5 200 00 404	1230	94,5-96,5	1275:0,5-1,5	900	110-113	100	14,5-16,5	PO/346D
1280 55 - 59 * **(VH ca.64°) 3 mm RW 300 = 1	900	56,0-60,0		1375	3 mm RW			300 = 10 - 22
1280 55 - 59 *	1280	98 - 100	1325:0,5-1,5	1420	2 mm DI4			P0/350
1330 83,5-85,5 1275:0,5-1,5 000 00 101	1280	55 - 59		1430	3 IIIII RW			300 = 10 - 22
	1330	83,5-85,5	1275:0,5-1,5	900	98 - 101			PO/362D
900 49 - 53 * 1375 3 mm RW = 110/30	900	49 - 53	j.		1			300 = 10 - 22

When checking (column 3 and 5) increase by 1 cm^3 !

** Control lever

Testoil-ISO 4113

Checking values in brackets

-3-

Festoil-ISO 4113

Test equipment and holding parts as per WPP 115/1 - 1st supplement.

Connection parts as per BMP 115/9

1. Set start of delivery on prestroke; test angular cam spacing. (Please observe designation of outlets as per WJP 115/1 and give appropriate consideration to BMP 115/5.)

- 2. Set fuel delivery Section A of test-specification sheet (refer to BMP.. for connection parts)
- 3. Test governor Section B pre-adjustment without manifold-pressure compensator (refer to Items 4.2, 4.3 and 4.4 for special setting)
- 4. Set full-load delivery Section C, Column 1-2 when equipped with manifold-pressure compensator, set larger full-load delivery with manifold-pressure compensator removed.
- 4.1 Correct fuel-delivery characteristics Column 4-5 with torque-control retainer. Check whether full-load delivery unchanged.
- 4.2 Rotational-speed limitation: at upper rated speed + 25 rpm (+5), control-rod travel must be 0.5-1.5 mm less than with full-load delivery as per Column 2.

 Position end stop screw.
- 4.3 High idle: test as per Column 4-5; change pre-tension of rocker if necessary (tolerance \pm 10 rpm) to attain prescribed control-rod travel (\pm 0.1). Check whether rotational-speed limitation (Item 4.2) unchanged.
- 4.4 Perform idle-position regulation, then position auxiliary spring at tensioning lever, turn back 1 turn and secure.
- 4.5 Pre-adjust removed manifold-pressure compensator: unscrew stop screw in diaphragm housing.

Start of adjustment $0.07-0.20 \text{ kp/cm}^2$ End of adjustment $0.62-0.75 \text{ kp/cm}^2$

Adjust if necessary by way of washers beneath diaphragm spring.

At 1.5 kp/cm² manifold pressure, set immersion depth of 15.75 \pm 0.1 mm (contact surface of stop pin to end face without seal). Pre-tension of spring measured at contact surface of stop pin must be 6.15 \pm 0.65 kp.

If the immersion depth has to be adjusted, the adjusting screw and lock nut must be adjusted simultaneously, so as to maintain the spring preload of the spring-mounted element.

Limit travel of stop pin between 0 and 1.5 kp/cm² manifold pressure = 4.70-4.85 mm at stop screw of diaphragm housing. Make sure all parts move freely when adjusting manifold pressure!

4.6 Attach manifold-pressure compensator.

With stop screw in diaphragm housing set smaller full-load delivery as per Column 1-2. (= Fuel delivery on induction)

- 5. Test starting control-rod travel Column 6-7 (without manifold pressure).
- 6. Set idle/shutoff stop Column 8

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VDT-WPP 001/4 6. Edition

En

PES 6 P 100 A 720 RS 1010

EP/RSV 400-1050 P2/370 D

supersedes 12 company Jol

12.74 (4) John Deere

engine

6531 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm³¥160 strokes 3	cm³/ 100 strokes 4	mm 2	cm ³ /100 strokes	mm 6
1050	12,8	14,8-15,0	0,3			
400	6,7	1,9-2,5	0,3			
·						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV ..370 D

	er rated speed	rev/min	Intermediate rated speed			Lower rated speed			3 Torque control		
Degree of deflection of control	travel mm	travel mm rev/min					rev/min	Control rod travel	rev/min	Control rod travel	
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11	
ca.43	1050 1100	15,6-16,4 6,2-9,6				ca.19	400	7,2	1050	0	
	1150	3,8- 5,2	with	out au	uxilia	ry sprin	9 200 350	19-21 11-14	750	0,8-1,0	
	1220	0,3-2,6					400	7,2	500	0,8-1,0	
29	1260	0,3-1,5	with	auxil	liary	spring	600 750	1,4-4,2			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp 40°C (104°F)	Rotational- speed limitat		uel delivery paracteristics	Starting	fuel delivery 5	4a Idle stop	
rev/min	cm³/1000 strokes 2	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm [#] /1000 strokes 7	rev/min	Control rod travel mm
1,0 1050 750	bar 148,0-150,0 164,5-167,5 0 bar	1085-1095	1155 XX	24 - 32	100 400	160-190 19-25		
550	108-116							

Checking values in brackets

B. Governor Settings

EP/RSV ..370DR

Degree of deflection of control lever	r rated speed Control rod travel mm 2		Intermo	ediate rated	speed	Control- lever deflection in degrees 7	- Lowe rev/min 8	r rated speed Control rod travel mm	3 To	rque control Control rod travel mm 11
ca.38	1040 1080 1120	16,0 11,2 5,2	with	out au	xiliar	ca.17 y spring	400 200 400	7,2 19 - 21 6,9-7,5	1050 800	0 0,6-0,8
2 s	1050 1100 1280	ca.10,6 ca. 4,7 0,3-1,0	with	auxil	iary s	pring	550 780	3,3-5,1	500	0,8-1,0

C. Settings for Fuel Injection Pump with Fitted Governor

6	ill-load stop	6 Rotational- speed limitat.		Fuel delivery characteristics		fuel delivery 5	4a Idle stop	
	emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes	rev/min 8	Control rod travel mm
	1,0 bar 151,0-153,0 161,0-167,0	1085-1095*	LDA 550 1150	0 bar 108,0-116,0 24,0 - 44,0	100 400	160 - 180 21,0-27,0		

Checking values in brackets

B. Governor Settings

Degree of deflection of control lever	on travel travel		Interm	14 [6 [6 [Control- lever deflection in degrees 7	rev/min	Control rod travel mm	3 To	Control rod travel mm
20										

C. Settings for Fuel Injection Pump with Fitted Governor

II-load stop		rale O					
cm ³ /1000 strokes 2	note: changed to) rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min	cm ³ /1000 strokes	rev/min 8	Control rod travel mm 9
			•				
	mp. 40°C (104°F)	mp. 40°C (104°F) speed limitat. Note: changed to)	mp. 40°C (104°F) speed firmitat Note: changed to)	mp. 40°C (104°F) Note: changed to)	mp. 40°C (104°F) cm³/1000 strokes Note: changed to) rev/min rev/min rev/min rev/min rev/min	mp. 40°C (104°F) speed limitat Note: changed to) rev/min cm³/1000 strokes rev/min cm³/1000 strokes	mp. 40°C (104°F) cm³/1000 strokes Note: changed to) rev/min rev/min rev/min rev/min rev/min rev/min rev/min rev/min rev/min rev/min

^{* 1} mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

rev/min decreasing pressure - in bar gauge pressure Test at n = 500 Ppe 1010 -3-Control rod travel difference Pump/governor Measurement Setting (1) Gauge pressure = bar mm Gauge pressure = 1010 with 370 DR: - 0,2 mm 0,62 - 2,3 mm 0,20

Testoil-ISO 4113

Notes

(1) when n =

for rev/min and gauge pressure = 1,0

bar (= maximum full-load control rod travel)

J7

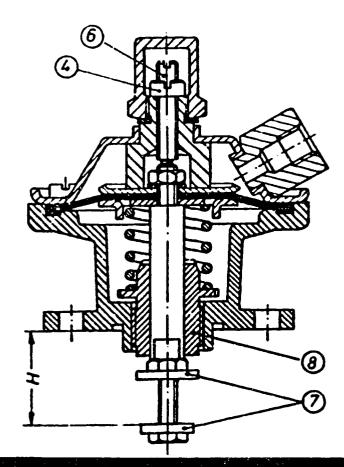
En

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Test sequence:

- 1. Basic setting of pump and governor (Section A-B) without manifold-pressure compensator.
- 2. Adjust full-load delivery delivery indication max. charge-air pressure with full-load stop screw of governor. Measure fuel-delivery characteristics at 750 rpm; correct if necessary with torque-control retainer.
- 3. Pre-adjustment of manifold-pressure compensator: set dimension H contact surface to lower stop screw (Item 7) -:
 Screw in adjusting screw in cover until this causes the diaphragm to be lifted off by 0.5 mm (delivery correction possibility during induction); counterhold screw during this operation to prevent diaphragm damage (items 4 and 6).
- 4. Fit manifold-pressure compensator taking care to ensure that bell crank is positioned between washers of lower stop screw. To do so, move bell crank sideways and position approx. 45° upwards. Pay attention to 0-ring! As a check, actuate stop lever full-load control-rod travel must be set. If starting travel is attained, bell crank is not properly in position. If less than full-load control-rod travel is attained, enlarge dimension H accordingly.
- 5. Connect compressed air adjustment test at 500 rpm: test start and end, correct at guide bushing of helical spring. Establish control-rod-travel difference (Item 8).
- 6. Measure induction delivery (0 bar) correct if necessary in accordance with Item 3!
- 7. Check/adjust full-load delivery, engine-speed limitation, idle and starting fuel delivery.

* Dimension H 370 DR = 33.3 mm



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VDT-WPP 001/4

8. Edition

En

PES 4A85 D 420 LS 2459 EP/RSV 375-1000 A 2 E 547 DR

Supersede 11.9.69,23.4.70 Case 29.4.70 A301 BD 19.6.70

Test with case overflow valve! Pay attention to special governor setting!

19.2.71 29.4.71

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

29.4.71 19.4.72

A. Fuel Injection Pump Settings

2,15 + 0,1

ort closing at prestroke

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm¥100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm\$100 strokes	Spring pre-tensioning (torque-control valve) mm
1000	11,3	4,1 - 4,5	0,3			
375	7,5	1,6 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed		Intermediate rated speed			Lower rated speed			3 Forque control		
Degree of deflection	Control rod travel	Control rod travel				Control- lever		Control rod travel		Control rod travel	
of control lever	mm	mm rev/min				deflection in degrees	rev/min	mm	rev/min	mm	
1	2	<u> </u>	4 .	5	6	7	8	9	10	11	
ca.39	1040	10,8-11,6				ca.21	375	7,5	1000	0	
	1050 1080	9,6-10,0 5 - 6,2	with spri	out au: ng	xiliaı	У	150	19 - 21	000	1 0 1 1	
1	1140	0,8-2,6	1			l	375	7,2-7,7	800	1,0 - 1,1	
(2a)	1200			auxıl ıg	iary		600 300	11,6-14,0	400	2,0 - 2,2	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	Rotational- speed limitat Gain Fuel delivery characteristics			Starting fuel delivery 5 4a Idle stop				
Test oil to rev/min	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ⁹ /1000 strokes 7 mmRW	rev/min	Control rod travei mm	
1100	70,5 - 72,5	1040-1055*	1090	12,9 - 18,9	100	12,9-13,5	375	16,0-22,0	
600	85,5 - 89,5								
500	max. 88,0								

Checking values in brackets

VDT-WPP 001/4 3. Edition

engine

PES 6A 85 D 420 LS 2460 EP/RSV 375-1050 A 2B 521 DR

29.10.70,29.4.71

Case A 451 BD

Test with case overflow valve!

Pay attention to special governor setting!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre tensioning
rev/min	mm 2	cm¥100 strokes 3	cm³/ 100 strokes 4	m.m 2	cm ⁹ /100 strokes	mm 6
1050	11,4	7,5 - 7,9	4,0	†		
375	7,5	1,4 - 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	deflection fravel travel mm rev/min ever 2 3		Interme	Intermediate rated speed Conleve defining days are seed as a seed			Lower rated speed Control rod travel mm 8 9		(3) To	Prque control Control rod travel mm
ca.40	1100 1180	10 2,4-4	with spri	out a	uxilia	Уса.20	375 150	7,5 19-21	1050	0
29	1090 1280 1130	11,5-12 0,2-1,2 6,2-7,2	with auxiliary spring				375 600 280 480	7,3-7,7 0 - 1 10 - 12 1,2-3,5	800 500	0,9-4,0 1,0-1,3

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

						C.1101		
	ull load stop emp=40°C (104°F)	Rotational- speed limitat		uel delivery naracteristics	Starting Idle	fuel delivery 5	4a) Id	le stop
rev/min	cm³/1000 strokes 2	changed to) rev/min 3	rev/min 4	cm³/1000 strokes	rev/min	cm ⁹ /1000 strokes	rev/min	Control root travel mm
1050	75,0-78,0	1090-1105*	1150	11 - 17	 -	120-130	375	14 - 2
650	81 -86						3,3	' - 2
550	max. 84							

Checking values in brackets

VDT-WPP 001/4 3. Edition

PES 6 A 85 .. D 420 LS 2460

EP/RSV 375-1100 A 2 B 605 DR

supersedes 17.2.71, 28.4.71

Case company A401 BD

Test with case overflow valve! Pay attention to special governor setting!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,15+0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm¥100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm ⁹ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1100	10,5	6,1 - 6,2	0,3			
375	5,7	1,2 - 1,8				
						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed 4 5 6		Control- lever deflection in degrees	Low rev/min B	Control rod travel mm	rev/min	Control Control rod travel	
ca.46	1150 1250	9 - 9,6 1 - 2,5	without auxiliar spring			ca.24	375 150	6,5 19 - 21	1100 800	0 0,9 - 1,1
(2a)	1200	0,0-10,6 4,4-5,4 0,2-1,2		with auxiliary spring			375 600 250 480	6,3-6,7 0 - 1 10,7-12,7 1,6- 3,9	450	1,3 - 1,7

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp 40°C (104°F)	Rotational- speed limitat		uel delivery haracteristics	Starting Idle	fuel delivery 5	(4a) Idi	e stop
rev/min	cm³/1000 strokes 2	changed to) rev/min 3	rev/min 4	cm³/1000 strokes	rev/min	cm ^{\$} /1000 strokes	rev/min 8 CM ³	Control rod travel mm gl 000
1100 600 500	60,5-62,5 69 - 74 max. 72	1140-1155*	1200	8 - 14	100	120 - 130	375	12 - 18

Checking values in brackets

En

PES 6 A 90 D 420 LS 2461

EP/RSV 375-1050A2B 723DR

supersedes

company Case

A 451 BDT engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1

Rotational speed rev/min	Control rod travel	Fuel delivery	Difference cm³/ 100 strokes	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
1050	13,8+0,1	11,0-11,2	0,3			
375	7,0-7,2	1,4- 2,0				
<u> </u>	<u> </u>					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control	deflection travel travel		Interme	diate rated	speed	Control- lever deflection rev/min		rated speed Control rod travel mm	(3) Yo	rque control Control rod travel mm
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11
ca.40	1090 1100 1120	12,2-12,8 11,2-12,4 7,4-10	witho	ut aux	kiliar	ca.17 y spring	1 150 375	7,1 19 - 21 6,9-7,3	1050 400	Ť
2a	1150 1250	4 - 5,8 0,2- 1,2	with	auxili	ary s	pring	450 550 320	2,8-4,5 0 - 1 11,6-14,6	800	0,1 - 0,3

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	6 Rotational- speed limitat	33 F.	iel delivery naracteristics	Starting Idle	fuel delivery 5	4a Idl	e stop
rev/min	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min cm³/1000 strokes 4 5		rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm
1050	109 - 113 (108 - 114)	1090-1105* (1085-1110)	1150	10 - 16	100	13,5-14,5	375 cm³/	14,5- 20,5 1000 H.
							٠.	

Checking values in brackets

WPP 001/4 1. Edition

PES 6 A 95 D 410 RS2479 EP/RSV 600-1100 A2B771L,

company

John Deere

Test-pressure line $6 \times 2 \times 600$ Inlet pressure 1.5 bar

engine

6404 T

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testoil-ISO 4113

Lackerhanage and art to he

 $1,9+0,1(^{+0}_{-0,05},^{15}_{-0,05})$

Port closing mark cyl. 1 : 14° after port closing

Rotational speed rev/min	Control rod Fuel delivery travel cm³/100 strokes		Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)		
1	2	3	4	2	3	6		
1100	9,8	8,8 - 9,1	0,3					
600	5,1	1,2 - 1,6				7		
]						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

600-1100 A2B771 L

Degree of deflection of control tever	r rated speed Control rod travel mm	Control rod travel mm rev/min	Interme 4	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	3 To	rque control Control rod travel mm
ca.40	1150 1200	8,8 6,0	withou	t auxi	liary	ca.23 spring	600 200 600 670- 730	5,1 19 - 21 5,0-5,2 2	1100	0

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	Il-load stop	6 Rotational speed limitat		iel delivery naracteristics	Starting I	fuel delivery 5	4a ld	e stop
rev/min	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm
1100	87 - 91 (85 - 93)	1145-1150* (1140-1160)	1200	20 - 30	100	160 - 180 12 - 16		

Checking values in brackets

* 1 mm less control rod travel than col. 2

J13

WPP 001/4 1. Edition

PES 6 A 95 D 410 RS2479

EP/RSV 400-1100 A7B772L

company John Deere

Test-pressure line 6 x 2 x 600

Inlet pressure 1.5 bar

6404 T

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fue! Injection Pump Settings

Port closing at prestroke 1,9+0,1 $\binom{+0,15}{-0,05}$

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1080	10	8,9 - 9,1	0,3			
400	6	1,2 - 1,6				
Port clos	ing mark c	/ l. 1 : 14° af	ter port cl	os ing		

Adjust the fuel delivery from each outlet according to the values in \Box

B. Governor Settings

Testoil-ISO 4113

600-1100 A2B771 L

Degree of deflection of control lever	r rated speed Control rod travel mrn 2		Interme	diate rated	speed 6	Control- lever deflection in degrees 7	Lowe rev/min 8	r rated speed Control rod travel mm	rev/min	rque control Control rod travel mm
ca.70°	1100	10	witho	out aux	kilian	ca.29 y sprin	400 100 400	6 19 - 21 5,9-6,1	1080 400	0
2a	1115- 1125 1145	9 4,6	with	auxil	iary :	spring	520- 580	2	300	1,2 - 1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Fu	II-load stop	6 Rotational- speed limitat		uel delivery naracteristics	Starting I	fuel delivery (5)	(4a) ld	le stop
Test oil te rev/min 1	cm ³ /1000 strokes	Note changed to) rev/min 3	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1080	88 - 92 (86 - 94)	1115-1125 (1110-1130)			100 600 1175	160 - 180 12 - 16 21 - 27	ļ	5,1
					-	gagar sarris	•.	

Checking values in brackets

^{* 1} mm less control rod travel than col. 2

WPP 001/4 1. Edition

PES 6 A 95 D 410 RS2479

EP/RSV 400-1200 A2B773DL

supersedes

John Deere 6404 T

company engine

Test-pressure line 6 x 2 x 600 Inlet pressure 1.5 bar

and Governors

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9+0,1 (+0,15)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm¥100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm\$100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1200	9,5	8,9-9,1	0,3			
400	5,8	1,1-1,5				
Port clo	sing mark cy	11. 1 : 14° aft	er port cl	os ing		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

600-1100 A2B771 L

Degree of deflection of control	r rated speed Control rod travel		Intermediate rated speed		Control- lever deflection	Lower	rated speed Control rod travel mm	3 To	rque control Control rod travel mm	
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11
ca.40	1200	15,7-16,3				ca.23	400	5,8	1200	0
	1210 1300	15,2-15,6 5,4- 8,7	witho	ut aux	ciliar	y spring	200 750	19 - 21	850	0,5 - 0,7
	1380	1,7- 4	us+h	auxili	ianu s	nrina	350	8,8-11,6	600	0,5 - 0,7
29	1550	0,3-1,7	WILH	aux I i	iary s	פייו יוק	400 550	5,7- 5,9 2,2- 4		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	il-load stop	6 Rotational- speed limitat	(3a) Fu	uel delivery '	Starting I	fuel delivery 5	(4a) idi	e stop
Test oil to rev/min 1	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1200	88 - 90,5	1245-1255			100	160-180 11- 15	600	5,1
800	91,5- 96,5				1295	21,5-31,5		
(inrea	se by - 2,0 cm ³	!)		!				

Checking values in brackets

* 1 mm less control rod travel than col. 2



Festoil-ISO 4113

WPP 001/4 1. Edition

PES 6 A 95 D 410 RS2479

EP/RSV 600-1100 A2B774L

supersedes company

John Deere 6404 T

Test-pressure line $6 \times 2 \times 600$ Inlet pressure 1.5 bar

engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9+0,1 (+0,15)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning
rev/min 1	mm 2	cm¥100 strokes 3	cm³/ 100 strokes 4	mm 2	cm³/100 strokes	mm
1100	9,4	8,0 - 8,2	0,3			
600	5,3	1,2 - 1,6				
Port clo	sing mark c	yl. 1 : 14° af	ter port c	osing		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

600-1100 A2B771 L

Degree of deflection of control lever	ection travel travel mm rev/min 2 3			nediate rate	1 speed	Control- lever deflection in degrees 7	Low rev/min 8	er rated speed Control rod travel mm	3 To	Control rod travel mm
ca.40	1150	8,4	with	out aux	xiliar	ca.23 y spring	600	5,3 5,2-5,4	1100	0
23	1200	5,0	with	n auxil	iary s	pring	100 670- 730	19 - 21		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

9	ull-load stop emp 40°C (104°F)	Rotational speed limitat		Fuel delivery characteristics		fuel delivery 5	4a Idle stop	
rev/min 1	cm³/1000 strokes 2	changed to) rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min	Control rod travel mm
1100	79-83	1150-1160 (1145-1165)			100 600 1200	15,5-17,5 12 - 16 21 - 31	600	5,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

Festoil-ISO 4113

WPP 001/4

1. Edition

PES 6 A 95 D 410 RS2500

EP/RSV 600-1100 A2B771L

Test-pressure line 6 x 2 x 600

supersedes =

John Deere company 6404 T

engine

Inlet pressure 1.5 bar

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings Port closing at prestroke 1,9+0,1 (+0,15) mm

Testoil-ISO 4113

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm¥100 strokes	cm³/ 100 strokes	mm	cm³/100 strokes	mm
1100	9,8	8,8 - 9,1	0,3	2	3	6
600	5,1	1,2 - 1,6				
Port clo	sing mark c	yl . 1 : 14° af	ter port cl	os ing		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

600-1100 A2B771 L

Degree of deflection of control lever	r rated speed Control rod travel mm	rev/min Control rod travel mm rev/min	Interme	diate rated	speed	Control- tever deflection in degrees	Lower	rated speed Control rod travel mm	3 To	rque control Control rod travel mm
ca.40	1150 1200	8,8 6,0	4 with	out au	l6 xilia	ca.23 ry sprin		5,1 19 - 21	1100	0
23			with	auxil	iary s	pring	600 670- 730	5,0-5,2		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational- speed limitat	(3a) Fu	uel delivery paracteristics	Starting	luel delivery 5	(4a) Idi	e stop
rev/min	emp 40°C (104°F) cm ⁴ /1000 strokes 2	Note changed*to } rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1100	87 - 91	1145-1155 (1140-1160)	,		100 600 1200	160-180 12- 16 20- 30		
(inre	ase by - 2,0 cm	³!)						

Checking values in brackets

WPP 001/4 1. Edition

PES 6 A 95 D 410 RS2500 EP/RSV 400-1100 A7B772L

supersedes

company engine

John Deere 6404 T

Test-pressure line $6 \times 2 \times 600$ Inlet pressure 1.5 bar

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

estoil-ISO 4113

 $1,9+0,1 \stackrel{(+0,15)}{-0.05}$

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cmil/100 strokes	cm³/ 100 strokes 4	mm 2	cm³/100 strokes	mm 6
1080	10	8,9 - 9,1	0,3			
400	6	1,2 - 1,6				
Port clo	sing mark c	1. 1 : 14° af	ter port cl	os ing		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

600-1100 A2B771 L

Degree of deflection of control lever	r rated speed Control rod travel mm 2		Interme	Intermediate rated speed 4 5 6			Lower rev/min 8	rated speed Control rod travel mm	11 3 1	rque control Control rod travel mm
ca.40	1100 1145	10 4,6	witho	out aux	ciliar	ca.23 y spring		6	1080	0
23	1115- 1125	9,0	with	auxil	iary :	spring	400 520- 580	5,9-6,1 2	300	1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	Rotational- speed limitat	33 FL	iel delivery naracteristics	Starting t	luel delivery 5	4a) ld	e stop
rev/min	cm ⁹ /1000 strokes 2	Note changed to) rey/min 3	rev/min 4	cm³/1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1080	88 - 92 (86 - 94)	1115-1125 (410-1130)			100 400	160 - 180 12 - 16		
(inre	ase by + 2,0 cm ³	!)			1145	25 - 33		

Checking values in brackets

40

WPP 001/4
1. Edition

<u>En</u>

PES 6 A 95 D 410 RS 2500 EP/RSV 400-1200 A2B773DL

supersedes _

Test-pressure line 6 x 2 x 600 Inlet pressure 1.5 bar

company John Deere

engine 6404 T

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9-0,1 $(^{+0}_{-0}, ^{15}_{05})$

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes	cm³/ 100 strokes 4	mm 2	cm ³ /100 strokes	mm 6
1200	9,5	8,9 - 9,1	0,3			
400	5,8	1,1 - 1,5				
D 1 .						
Port clo	sing mark c	/1. 1 : 14° af	ter port cl	ps ing		

Adjust the fuel delivery from each putlet according to the values in

B. Governor Settings

600-1100 A2B771 L

1 Uppe	r rated speed	I rev/min	Intermed	diate rated	speed	4	Lower	rated speed	(3) 10	rque control
Degree of deflection	Control rod travel	Control rod travel				Control- lever		Control rod travel		Control rod travel
of control lever	mm	mm rev/min				deflection in degrees	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.40	1200	15,7-16,3				ca.23	400	5,8	1200	O.
	1210 1300	15,2-15,6 5,4- 8,7	with	out au	xilia	ry sprin		19 - 21	850	0,5-0,7
(2a)	1380 1550	1,7- 4 0,3-1,7	with	auxi]	liary	spring	350 400 550	8.8-11,6 5,7- 5,9 2,2- 4		0,5-0,7
							750	0- 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	emp 40°C (104°F)	Rotational- speed limitat		uel delivery naracteristics	Starting findle	uel delivery 5	(4a) Idi	e stop
rev/min	cm³/1000 strokes	changed to) rev/min 3	rev/min 4	cm³/1000 strokes	rev/min	cm³/1000 strokes 7	rev/min 8	travel mm
1200	88 - 90,5	1245-1255* 1240-1260)			100	160 - 180	600	5,1
800	91,5- 96,5	(1240-1260)			400 1295	11 - 15 21,5-31,5		
(inre	ase by ± 2,0 cm	!)						

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

40

WPP 001/4
1. Edition

En

PES 6 A 95 D RS2500 EP/RSV 600-1100 A2B 774L

supersedes

engine

company 5/

John Deere 6404 T

Test-pressure line $6 \times 2 \times 600$ Inlet pressure 1.5 bar

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9+0,1 (+0,15)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	9,4	8,0 - 8,2	0,3			
600	5,3	1,2 - 1,6				
Port clos	ing mark cy	ıl. 1 : ^{14°} aft	er port cl	osing		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

600-1100 A2B771 L

1 Uppe	er rated speed		Interme	diate rati	ed speed	4	Lowe	rated speed	(3) To	orque control
Degree of deflection of control lever	travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
ca.40	1150 1200	8,4 5,0	witho	out au	uxilian	ca.23 y sprin	100	5,3 19 - 21		
(2a)	1100 1170 1270	ca.9,2 4,6-5,6 0,3-1,0	with	u ,	iary s	pring	600 670- 730	2		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational- speed limitat	11301	uel delivery naracteristics	Starting I	fuel delivery 5	(4a) (d)	e stop
rev/min	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1100	1	1150-1160 1145-1165)			100 600 1200	15,5-17,5 12 - 16 21 - 31	600	5,1
(inrea	se by + 2,0 cm ³	!)						

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.76

VDT-WPP 001/4

2. Edition

PES 6 A 85C 420 LS 2264 EP/RSV 375-1050 A2B 667 D D .. LS 2460

1.12.72

Test with case overflow valve!

Case company

Pay attention to special governor setting!

A 451 BD engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15+0,1

estoil-ISO 4113

Rotational speed rev/min t	Control rod travel mm 2	Fuel delivery cm3/100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm ^{\$} 100 strokes 3	Spring pre-tensioning (torque control valve) mm
1000	9	4,1 - 4,5	0,4			
	6 12	1,1 - 1,9 7,2 - 8,0				
200	6	0,9 - 1,7				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection	Control rod travel	Control rod travel	Interme	diate rated	speed	Control lever	Lowe	Control rod travel	Torque Control Control rod travel	
of control lever	mm 2	mm rev/min	4	5	6	deflection in degrees 7	rev/min 8	mm 9	revimin t0	mm 11
ca.45	1070 1120 1170	10,7 6,4 2,6	with spri	out au ng	xilia	ca.22 ry	150	6,7 19 - 21	1050	0
2a	1090 1150 1260	10,2-10,8 4,6- 5,4 0,3- 1	with spri	auxıl ng	iary		375 450 580	6,4-7,0 3,2-4,7 0 - 1	500 500	0,7-0,9 1,0-1,3

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp=40°C (104°F)	6 Rotational- speed limitat	39 F.	uel delivery naracteristics	Starting	fuel delivery 5	(4a) idi	e stop
ŀ	cm ³ /1000 strokes	Note changed to) rev/min 3	rev/min	cm³/1000 strokes	rev/min	cm ⁹ /1000 strokes	rev/min	Control rod travel mm
1050	70,5 - 72,5	1090-1105*	1150	7,5 - 13,5	100	12,7-13,5	375	11 - 17
650	81,5 - 85,5	(1088-1110)	1130	7,5 - 13,5				
550	Max. 84,6	-						
	<u></u>							

Checking values in brackets

* 1 mm less control rod travel than col. 2

J21 ...

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WPP 001/4 1. Edition

En

PES 6 A 95 D 410 RS2479 EP/RSV 400-1100 A2B768DL

Test-pressure line $6 \times 2 \times 600$

Inlet pressure 1.5 bar

Manifold-pressure compensator (LDA) adjustment page 2

supersedes

company

John Deere

engine 6404 T

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,9+0,1(^{+0}_{-0},15)$

mm (from BDC

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm³2100 strokes	cm³/ 100 strokes	mm	cm³/100 strokes	mm
1	2	3	4	2	3	6
1100	9,8	8,8 - 9,8	0,3			
400		1,2 - 1,6	0,3			1
Port clo	sing mark c	yl.1:14°after	port closin	g		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

400-1100 A2B768DL

Degree of deflection of control tever	rrated speed Control rod travel mm		Intermed	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	r rated speed Control rod travel mm 9	1(3)	rque control Control rod travet mm
ca.44	1110 1220	15,7-16,3 14,8-15,4 4,6- 7,6	with			ca.21 ry sprin spring	400 9 100 330 440 550 750	5,6 19 - 21 9,4- 12 5,4-5,8 1,8-3,5 0 - 1	750	0 0,3-0,5 0,7-1,0 0,7-1,0

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

W	emp 40°C (104°F)	Rotational- speed limitat	33 Fu	iel delivery paracteristics I	Starting f	uel delivery 5	4a Idi	e stop
rev/min	cm ³ /1000 strokes 2	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	travel mm
1100	0,7 bar 87 - 91 96 -101	1145-1155*	LDA LDA 750	0,7 bar 0 bar 96,0-101,0	100	min 160 12 - 16	100	5,6
	63,5-70,5 ase by : 2,0 сп	³ !)	550	63,5- 70,5	1200	20 - 30		

Checking values in brackets

Festoil-ISO 4113

^{* 1} mm less control rod travel than col 2

VDT-WPP 001/4 8. Edition

PES 6 A 95 D 420 LS 3024 EP/RSV 375-1100 A2 B516DR

supersedes 7.7.73 CASE company

A 504 BDT engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0+0,1

mm (from BDC)

Rotational speed	· · · · · · · · · · · · · · · · · · ·		Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm¥100 strokes	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes	mm 6
1100	10,8	11,2 - 11,4	0,3		3	
375	5,7	1,6 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV 375-1100 A2 B516 DR

(人・)	r rated speed Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed			Control- lever deflection in degrees	rev/min	rated speed Control rod travel mm	rev/min	rque control Control rod travel mm
ca.39	1150 1140	9 - 10 10,4-11,2	withc	ut aux	cil iar	ca.20 y spring	150	5.7 19 - 21	1100	0 0,1 - 0,4
29	1180 1220 1280	4,8- 6 1,2- 3,2 0,3- 1	with	auxil	iary s	pring	375 450 550 320	5,6-5,8 1,5-3,4 0 - 1 10 -12,4	400	0,1 - 0,4

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ilf-load stop	6 Rotational- speed limitat	11301	uel delivery paracteristics	Starting fuel delivery 5 4a Idle stop			
Test oil te rev/min	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min	Control rod travel mm
1100	111 - 115	1140-1155	1200	12 - 18	100	13 - 14	375	16-22
800	115 - 118	(1135-1160)						cm³/ 1000
700	max. 117							
(inrea	ase by : 1,0 cm ³	!)						

Checking values in brackets

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VDT-WPP 001/4

8. Ausgabe

En

PES 6 A 95 C 420 LS 3024 EP/RSV 375-1100 A2 B 599 DR

supersedes company 7.7.73 CASE A 504 BDT

engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 + 0,1

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cmi 100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm 6
1100	10,8	11,2-11,4	0,3			
375	5,7	1,6- 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV 375-1100 A2 B599 DR

Degree of deflection of control lever	er rated speed Control rod travel mm		Intermed	diate rated	speed	Control lever deflection in aegrees 7	Lowe rev/min 8	r rated speed Control rod travel mm 9	1(5)	rque control Control rod travel mm
ca.39	1140 1150 1180	10,5-11,2 9-10,2 0,3-1,0	ł	ut aux	aliar	18° y spring	375 150	5,7 19 - 21	1100 950	0 0,2-0,5
(2a)	1220 1300	1,2- 3,2 0,3- 1,0	with	auxili	iary s	pring	375 450 600 280	5,6-5,8 2,2-3,8 0 - 1 9,2-11,5		0,2-0,5

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational- speed limitat	3a Fuel delivery characteristics		Starting I	fuel delivery (5)	(4a) Idle stop	
rev/min	emp 40°C (104°F) cm ³ /1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm³/1000 strokes	rev/min	cm\$1000 strokes	rev/min	Control rod travel mm
1100	111-115	1140-1155	1200	12 - 18	100	13 - 14	375	16-22
800	113-118	(1135-1160)	1200	12 - 10	:			cm ³ /
700	max.117							1000
(inrea	se by · 1,0 cm³	!)						

Checking values in brackets

* 1 mm less control rod travel than col 2

Festoil-ISO 4113

VDT-WPP 001/4 8. Edition

PES 6 A 95 D 420 LS 3024 EP/RSV 375-1100 A2 659 DR

7.7.73 supersede s

Case company

A 504 BDT engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 + 0,1

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)		
rev/min	mm 2	cm¥100 strokes 3	cm³/ 100 strokes 4	mm 2	cm³/100 strokes	mm 6		
1100	12,35-12,45	13,6-13,8	0,4					
375	5,9	16,5-22,5						

Adjust the fuel delivery from each outlet according to the values in \square

B. Governor Settings

EP/RSV 375-1100 A2 B659DR

(1) Uppe	er rated speed	rev/min	Interrne	diate rated	speed	4	Lower	rated speed	(3) To	rque control
Degree of deflection	Control rod travel	Control rod travel				Control		Control rod travel	O	Control rod travel
of control lever	mm 2	mm rev/min				deflection in degrees	rev/min	mm	rev/min	mm
	12	3	14	5	6	<u> </u>	8	9	10	11
ca.43°	1150	9,6-10,4				ca.20	375	5,9	1100	0
	1140 1200	11-11,8 2.6- 4.6	withd	out aux	(1¦1ar	y spring	150 375	19 - 21		
(C)	1280 1170	0,2-1,2 6,4-8	with	auxil	iary s	pring	450 550	5,8 - 6 1,8 - 3,5 0 - 1	750	0,3
(29)			<u></u>				320	9,5 - 12	400	0,55-0,85

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	6 Rotational- speed limitat	6 Rotational- speed limital 3a Fuel delivery characteristics			Starting fuel delivery 5 4a Idle stop			
Test oil to	cm ³ /1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1100	136 - 138	1140-1155 1135-1160)	1200	21 - 27	100	13 - 14	375	16,5- 22,5	
750	144 - 147							cm ³ /	
650	max 147						; ;	1000	
(inrea	se by \cdot 1,0 cm ³	!)							

Checking values in brackets

* 1 mm less control rod travel than col. 2

Festoil-ISO 4113

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VDT-WPP 001/4 8. Edition

En

PES 6 A 95 D 420 LS 3024 EP/RSV 375-1100 A2 B697DR

supersedes 7.7.73 CASE

engine

A 504 BDT

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,0 + 0,1

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm¥100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000	9	8,4 - 9,0	0,4			
200	6 15 6	4,0 - 5,0 16,5 -17,8 1,4 - 2,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV 375-1100 A2 B697DR

Degree of deflection of control lever	r rated speed Control rod travel mm 2	rev/min Control rod travel mm rev/min 3	Intermed	diate rated	speed	Control- lever deflection in degrees 7	Low rev/min 8	Control rod travel mm	3 for	rque control Control rod Iravel mm
ca.39	1150 1140 1170	9 -10,4 10,6-11,4 6,4- 7,6	witho	ut aux	ciliar	ca.20 y spring	375 150 375	5,7 19 - 21	1100 750	0 0,1 - 0,3
23	1280 1200	0,2- 1,2 2,8- 4,5	with	auxili	iary s	pring	450 550 320	5,6-5,8 1,3-3,3 0 - 1 10 - 13	500	0,1 - 0,3

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational- speed limitat		iel delivery paracteristics	Starting to	fuel delivery (5)	(4a) Idle stop	
rev/min	emp 40°C (104°F) cm ³ /1000 strokes 2	Note changed to) rev/min 3	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1100 750 650	123 - 127 123 - 128 max. 126	1140- 1155	1200	22 - 28	100	13 - 14	375	16-22 cm ³ / 1000
(inrea	ise by + 1,0 cm ³	!)						

Chécking values in brackets

1. Edition

PES 6 A 95 D 410 RS2479 400-1100 A2B769DL Test-pressure line 6 x 2 x 600 Inlet pressure 1.5 bar

supersedes company

engine

John Deere 6404 T

Manifold-pressure compensator (LDA) adjustment page 2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,9+0,1(^{+0}_{-0},15)$

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm¥100 strokes	cm³/ 100 strokes	mm	cm ³ /100 strokes	mm 6
1000	9,8-9,9	7,5 - 8,0	0,4			
200	6 6	3,2 - 4,2 0,5 - 1,4				
Port clo	sing mark c	y1. 1 : 14° at	fter port o	lpsing		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

11 1	r rated speed Control rod travel mm		Interme	diate rated	speed	Control lever deflection in degrees	Lower	Control rod travel mm	(ev/min	rque control Control rod travel mm
ca.44		16,0 9,8 6,0 ca.9,5	4	iout au	ıxilia	ca.21 ry sprin	400	5,6 19 - 21 5,3-5,9 3,3-4,4	1080 450	0
29	1200	ca.4,7 0,3-1,0	wit	n auxī	liary	spring	/20	0 * 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational speed limitat 3a Fuel delivery characteristics			Starting f	uel delivery (5)	4a !dle stop	
Test oil to rev/min 1	emp 40°C (104°F) cm ⁴ /1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm ⁹ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1100	0,7 bar 87,5 - 89,5	1140-1150* (1135-1155)	LDA 750	0,7 bar 97,0 - 100,0	100 400	159 - 179 12 - 16	Ì	5,6
(inre	ase by : 2,0 cm	3!)			1200	19 - 29		

Checking values in brackets

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VDT-WPP 001/4
1. Edition

En.

PES 8 A 75 D 320 RS 2463

RQV 300-1500AB 912D (1)*

supersedes _ company: IHC

913D (2)* 914D (3)*

engine DV 550 C

Inlet pressure 2.5 bar (1)

See note 1,2,3 -page 3!

.

(1-180 PS)* (2-160 PS)*

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

(3-200 PS)*

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,3)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1500	9,65-9,75	5,88-5,98	0,3			•
300	(± 0,05) 9,65	0,1-1,5 - 3,7-4,6 -	cyl. 1- cyl. 2-	4-6-7) 3-5-8)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQV ..912 D (1)*

Upper rated s	peed		Intermedia	e rated sp	eed	Lower rated	speed) stiding s	leeve travel
deflection of control	rev/min Control rod travel	travei	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1
lever	mm 2	rev/min (3	lever	rev/min	mm (4)	lever	rev/min 8	mm (3)	rev/min	mm 11
ca.68	1600 2000 1700 2000	15,0-18,5 0 9,0-14,0		-	-	ca.10	250 400 500 650 860	6,5-8,2 2,9-4,5 2,3-3,3 1,1-2,1		
						3 a				

Torque control travel a =0.3

mn

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 2b timitation intermediate speed	intermediate speed		Starting Idle switching		Torque- travel	Control cod
rev/min	cm ³ /1000 strokes	rev/min 4a)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1500 1000	58,8-59,8 50,5-52,5	1600-1610* 1650: 7-8mm RW	1000	51,0-53,0	100 300	110,0-132,0 15,4- 19,4 cyl.2-3-5-8		9,7 10,0-10,1 10,0-10,1
		C		over point 30 U/min 250)	100 300	cyl.1-4-6-7 0 0)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

VDT-WPP 001/4

1. Edition

PES 8 A 75 D 320 RS 2463

EP/RSV 450-1300 A O B 1088 D

IHC

Inlet pressure 2,5 bar (1)

company

See note 1,2,3 -page 2!

DV 550 C engine (172 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,3)

mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm¥100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm 6
1300	10,8	6,7-6,8	0,3			
	(± 0,05)		·			
300		0,1-1,5 - 3,6-4,2 -	- (cyl.1- - (cyl.2-	4-6-7) 3-5-8)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed		Intermed	date rated	speed	4	Lower	rated speed	3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
ca.52	1300 1320	12,8-13,2 12,2-12,6			· • · · · ·	ca.30	450	5,7		
	1500 1580	4,8- 6,8 1,5- 4,0	With	out au	XIIIa	ry sprin	9 100 380 600	19 - 21 6,5- 21 1,5-3,5	900 540	10.9-11,1
(2a)	1700	0,2-1,2	with	auxil	iary	spring	750	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

W	ill-load stop	6 Rotational- speed limitat	Fuel delivery characteristics		Starting f	uel delivery 5	(4a) Idle stop	
rev/min	emp 40°C (104°F) cm ³ /1000 strokes 2	Note changed to) rev/min 3	rev/min	cm³/1000 strokes	rev/min	cm\$/1000 strokes	rev/min	Control rod travel mm
1300 900	67,0-68,0 61,5-63,5	1385-1395* 1475: 6-7 mm RW			100 450 100 450	112,0-135,0 8,0- 10,0 0 0		-3-5-8 -4-6-7

Checking values in brackets

* 1 mm less control rod travel than col. 2

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WPP 001/4
1. Edition

En

PES 6 A 100 D 410 LS 3029; RSV 400-1100 A 2 B 2019 DL

supersedes

company

John Deere

engine

6466 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,95-2,05Port closing at prestroke (1,9-2,1)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)		
rev/min 1	mm 2	cm¥100 strokes 3	cm³/ 100 strokes 4	mm 2	cm³/100 strokes	ınm 6		
1100	11,0	11,2-11,4	0,3(0,5)					
400	6,2	1,15-1,55	0,3(0,4)					
Port clo	sing mark c	vl1 : 15° at	fter port ci	losina				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	er rated speed	l rev/min	Interm	iediate rate	d speed	(4)	Lower	rated speed	3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm 9	rev/min	Control rod travel mm
loose	800 X =	0,3-1,7 3,5				ca.19	400 100	5,7 19,0-21,0	1100 750	10,95-11,05 10,75
ca.43	1150 1200	10,0 5,0					400 470-530	6,1- 6,3 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

49	II-load stop	Rotational speed limitat		iel delivery paracteristics	Starting t	uel delivery 5	4a) idi	le stop
Test oil te rev/min t	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to 1 rev/min 3	rev/min	cm³/1000 strokes	rev/min	cm\$/1000 strakes	rev/min	Control rod travel mm
1100 LDA 750 500	10,8,0-110,0 0,70 bar 117,5-120,5 0 bar 81,0-89,0	1145-1155* (1140-1160)			100 400 1200	170 - 200 11,5-15,5 25,0-35,0		

Checking values in brackets

WPP 001/4 1. Edition

PES 4 A 85 C 420 LS 2054 RSV 300...850 A 5 B 136 DR supersedes J.I. Case company A 301 D engine

0 400 874 023

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
		Cina iou strokes	100 strokes	ww	cm³/100 strokes	mm
1	2	3	4	2	3	6
1000	9,0	6,55-7,05				S1
	6,0	2,35-3,15				
	15,0	14,0-14,8				
200	6,0	1,35-1,25				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod Pravel mm	Control rod travel mm rev/min	Interm	ediate rati	ed speed	Control lever deflection in degrees 7	Lowe rev/min 8	Control rod travel mm	3 To	rque control Control rod travel mm
44°	865 880 920	9,2 8,0 5,2		without auxiliar spring			300 100 300	5,5 19,0-21,0 5,2- 5,8	830 700	0 0,2-0,5
23	880 950 1050	7,7-8,5 3 -4,2 0 -1,0	with spr		liary		400 500	1,5- 3,2 0 - 1,0		0,4-0,7 0,5-0,7

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	Full-load stop est oil temp 40°C (104°F) Rotational- speed limita			uel delivery naracteristics	Starting fuel delivery 5 4a Idle stop			
rev/min	cm ³ /1000 strokes	changed to) rev/min	rev/min	cm ³ /1000 strokes 5	rev/min	cm\$1000 strokes	rev/min	Control rod travel mm
830	75,0-77,0	850 - 865	600 450	78,0-81,0 76,0-80,0	100	85,0-95,0		
			935	13,5-22,5				

Checking values in brackets

RS3025

WPP 001/4 1. Edition

PES 6 A 100 D 410 RS3025Z EP/RSV 400-1100 A2B765DL

EP/RSV 400-1100 A2B766DL RS3025

EP/RSV 400-1100 A7B767

Test-pressure line $6 \times 2 \times 600$ Inlet pressure 1.5 bar

Manifold-pressure compensator (LDA) adjustment page 3!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

John Deere company 6404 A

engine

supersedes.

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0+0,1(^{+0}_{-0},15)$

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm¥100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ²⁰ 100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,15-10,25	10,9-11,1	0,2			
400	6,3	1,35-1,75	0,3			
Port clos	ing mark c	yl. 1 : 14° af	ter port cl	osing		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Festoil-ISO 4113

400-1100 A2B765DL / 3025Z

1(1)	r rated speed Control rod travel mm 2		Intermed	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm 9	1(5)	rque control Control rod travel mm
ca.43	1100 1145- 1155	10,15-10,25 9,2	withous spring	out au ng	xiliar	ca.21 y	400 100 400	6,3 19 - 21 6,2-6,4	1100 750 500	10,2 11,2 11,95-12,0
2 a	1200	4,8					480- 540	2,0	300	,55 12,0

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2	ill-load stop emp_40°C (104°F)	6 Rotational- speed limitat		uel delivery naracteristics	Starting lidle	Starting fuel delivery 5 4a		
rev/min	cm ³ /1000 strokes	Note changed to) rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min	cm\$1000 strokes	rev/mih 8	Control rod travel பார் 9
LDA 1100 500	0,7 bar 109,0-111,0 122,0-125,0 0 bar	1145-1150* (1140-1160)				155,0-185,0 135,0-175,0 25,8 - 35,0		6,3
550 (inrea	70,5-76,5 se by · 2,0 cm ³	!)				,		

Checking values in brackets

WPP 001/4 1. Edition

PES 6 P 110 A 720 RS 352 ROV300/600 - 1050 PA 359 KR

supersedes

company engine

Mack ET 673 (260 HP)

359 KR = dimension PLE - 685-745 inch.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2.8 + 0.1

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,0	15,8-16,4	0,4			
300	6,0	0,7-2,7				

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

D. GUA	. Governor Settings												
Upper rated	speed			Intermediate	rated sp	eed		Lower rated	speed			Sliding sleeve travel	
Degree of deflection	rev/min Control	Control rod travel	(1a)	Degree of deflection		Control ro travel	od	Degree of deflection	Ì	Control re travel	od		1
of control lever	rod travel	rev/min	(2a)	of control lever	rev/min	mm	(4)	of control lever	rev/min	mm	(3)	rev/min	mm
1	2	3	_	4	5	6		7	8	9		10	11
ca.68	1050	16,4-18	3,8	-	-	-		ca.19	250	9,8-1	1,5	300	0,8-2,1
	1150	4,2-10	0,0						400	2,2-	5,2	400 - 550 =	2,9-4,4
	1200	0- 9	5,6						700	-8,0		900	5,8-6,2
	1260	0		}				(a)	830	0		1050	7,9
	<u> </u>		_		L	<u>-</u>		(3a)					

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel deliv	ery characteristics 5a peed 5b	Starting Idle switchir	. 0	Torque- travel	Control cod
rev/min	cm³/1000 strokes	rev/min 4a	rev/min cm³/1000 strokes rev/min cm³/1000 strokes		rev/min	travel mm		
1	2	3	4	5	6	7	8	9
1050	173 - 175	1090-1100*	750	168,0-172,0	100	110,0-170,0	1050	12,5
			500	134,0-140,0	300	19,0- 39,0	750	12,8
					1155	29,0- 59,0	500	11,5
						l		

Chucking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 IHC 7,6 a 3. Edition

En

PES 6 MW 100/320 RS 1504

RSV 350 ... 1250 MW 2/305 R DHK 1 688 901 016

3.80 supersedes IHC company

DT 466

0 403 476 004

Testoil-ISO 4113

207 + 3 bar

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,20-3,30 Port closing at prestroke (3,15-3,35)

mm (from BDC)

10,5 mm RW

Rotational speed	al Control rod Fuel delivery travel		Difference	Control rod travel	Fuel delivery	Spring pre tensioning (torque-control valve)
rev/min	mm 2	cm³/100 strokes	cm3/ 100 strokes	mm 2	cm³/100 strokes	mm 6
1250	$7,3^{+0},2$	7,7 - 7,9	0,3(0,5)			
350	5,5-5,7	1,8 - 2,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	rev/min	Interm	Intermediate rated speed			Lower	rated speed	3 Torque control		
Degree of deflection of control	Control rod travel mm	Control rod travel mm rev/min				Control- lever deflection	rev/min	Control rod travel mm		Control rod travel mm	
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11	
loose	800	0,3-1,0				ca.32	350	5,6	1100	7,3 - 7,5	
			Į.				100	min.19	1000	7,8 - 8,0	
ca.60	1300-1	310= 6,4					350	5,5-5,7	800	8,5 - 8,7	
(2a)		390= 3,1 0,3- 1,7					430-490	= 2,0	500	8,6 - 8,8	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop emp_40°C (104°F)	Rotational speed limitat		Fuel delivery characteristics		uel delivery 5	4a) Idle stop		
rev/min	cm ³ /1000 strokes	Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes	rev/min	cm\$1000 strokes	revimin 8	Control rod travel mm	
1250	69,0-71,0 (68,0-72,0)	1300-1310*		76,0-78,0 (75,0-79,0) 82,5-84,5 (81,5-85,5)	100 350 1375	min. 140 18,0-22,0 (17,0-23,0 25,0-37,0 (24,0-38,0)	5,6	

Checking values in brackets

40

VDT-WPP 001/4 6. Edition

En

PES 6 P 100 A 720 RS 1010

EP/RSV 400-1050P2/367 DR

supersedes 12,74 (4) company John Deere

engine 6531 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

"estoil-ISO 4113

mm (from BDC)

Rotational speed rev/min	Control rod travel	Fuel delivery cmilino strokes	Difference cm³/ 100 strokes	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
1050	12,5	14,2-14,4	0,3			
400	6,7	2,1-2,7	0,3			
		Ĺ				

Adjust the fuel delivery from eight outlet according to the values in

B. Governor Settings

EP/RSV .. 367 DR

	r rated speed Control rod travel mm 2		Intermed	nate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rud travel mm 9	(3) To	rque control Control rod travel mm
ca.43	1050 1100 1150 1220 1260	15,6-16,4 6,2- 9,8 3,8- 5,2 0,3- 2,6 0,3- 1,5					200 350 400 500 750	7,2 19 - 21 11,2-14,0 7,2 4,8- 5,9 0,2- 1,2	1050 750 500	0 0,8 - 1 0,8 - 1

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

49	II-load stop	6 Rotational speed limitat	(3a) Fo	uel delivery naracteristics	Starting fuel delivery 5 4a Idle stop			
Test oil te rev/min	emp 40°C (104°F) cm ³ /1000 strokes	Note changed to) rev/min	rev/min	cm³/1000 strokes	rev/min	cm [#] /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1,0	bar		ļ !					
1050	142 - 144	1085-1095	750	159 - 162	100	160,0-190,0		
			550	0 bar 108 - 116				ļ
			XX		400 1155	21,0-27,0 15 -35		

Checking values in brackets

^{* 1} mm less control rod travel than col 2

EP/RSV .. 367 DR

B. Governor Settings

Degree of deflection of control lever	Control rod travel mm	rev/min Control rod travel mm rev/min	Intermed	diate rated	speed	Control- lever deflection in degrees	- Lower	rated speed Control rod travel mm	3 To	rque control Control rod travel mm
ca.38	1040 1080 1220	16,0 11,5 4,6	witho	ut aux	ciliar	ca.17 y spring	400 200 400	7,2 19 - 21 6,9-7,5	1050 800	0 0,6-0,8
23	1050 1155 1280	ca.11,0 ca. 4,7 0,3 - 1,0	with	auxil	iary s	pring	550 780	3,2-5,1 0 - 1		0,8-1,0

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Fu	ill-load stop	6 Rotational- speed limitat	111.73.43	uel delivery paracteristics	Starting t	uel delivery 5	de stop	
Test oil te rev/min 1	emp. 40°C (104°F) cm ³ /1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm ³ /1 000 st rokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm
LDA 1050 750		1085-1095*		0 bar 108,0-116,0	100 400	160 - 180 21,0-27,0		
			1155	24,0 - 44,0				:

Checking values in brackets

B. Governor Settings

Degree of deflection of control levor	deflection of control mm mm rev/min lever		intern	nediate rate		Control- lever deflection in degrees	Lower rated speed Control rod travel mm		Torque control Control rod travel mm	
1	2		4	5	6	7	8	9	10	11
28										

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational- speed limitat	Rotational- speed limitat Sa Fuel deliver characterist			uel delivery 5			
	emp. 40°C (104°F) cm³/1000 strokes	changed to) rev/min	rev/min	cm ³ /1 000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
						Ì			
	<u> </u>		ŀ						
				.					
		}							
						<u> </u>		<u> </u>	

Checking values in brackets

^{* 1} mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Ppe 1010

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

-3-

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure - bar	Measurement Gauge pressure = bar	diminution Control rod travel- difference mm (1)
1010 with 367DR:	0,55	0,20	-0,2 mm -1,9 mm

Notes

(1) when n -

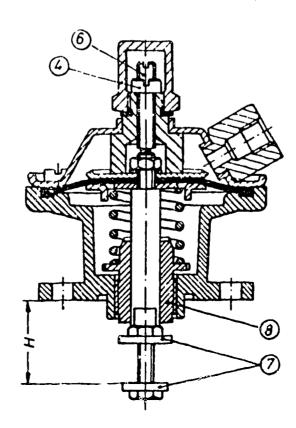
500 rev/min and gauge pressure 1,0

bar (maximum full-load control rod travel)

Test_sequence:

- 1. Basic setting of pump and governor (Section A-B) without manifold-pressure compensator.
- 2. Adjust full-load delivery delivery indication max. charge-air pressure with full-load stop screw of governor. Measure fuel-delivery characteristics at 750 rpm; correct if necessary with torque-control retainer.
- 3. Pre-adjustment of manifold-pressure compensator: set dimension H contact surface to lower stop screw (Item 7) -: Screw in adjusting screw in cover until this causes the diaphragm to be lifted off by 0.5 mm (delivery correction possibility during induction); counterhold screw during this operation to prevent diaphragm damage (items 4 and 6).
- 4. Fit manifold-pressure compensator taking care to ensure that bell crank is positioned between washers of lower stop screw. To do so, move bell crank sideways and position approx. 45° upwards. Pay attention to 0-ring! As a check, actuate stop lever full-load control-rod travel must be set. If starting travel is attained, bell crank is not properly in position. If less than full-load control-rod travel is attained, enlarge dimension H accordingly.
- 5. Connect compressed air adjustment test at 500 rpm: test start and end, correct at guide bushing of helical spring. Establish control-rod-travel difference (Item 8).
- 6. Measure induction delivery (0 bar) correct if necessary in accordance with Item 3!
- 7. Check/adjust full-load delivery, engine-speed limitation, idle and starting fuel delivery.

* Dimension H 370 DR = 33.3 mm



VDT-WPP 001/4 1. Edition

En

PES 8 P 100 A 921/5 RS 286 EP/RSV 350-1200 PO/394 DR

supersede's

company engine

IHC - USA **DVT 800**

s.WPP 110/2, 3. Edition

1 - 8 - 4 - 2 - 7 - 3 - 6 - 5 je 45°!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers A. Fuel Injection Pump Settings

(Ckecking

+ 0,15

Port closing at prestroke 2,8+0,1

Testoil-ISO 4113

- mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm¥100 strokes	cm³/ 100 strokes	mm 2	cm ² /100 strokes	mm 6
1200	8,6	9,5-9,7	0,4			
350	5,6	1,65-2,25	0,6			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

P0/392 DR

Degree of deflection of control	Control rod travel	Control rod travel				Control lever	Lower	rated speed Control rod travel	3 To	rque control Control rod travel
lever 1	2	3	4	5	6	in degrees	8	9	10	11
ca.49	1300	9,5-11,2	ما خاند ا	without auxiliary			350	6,0	1180	0
	1350 1250	4,8-8 13-14					150 350	19-21 6,0	950	0,5
(2a)	1390 1200 1440	1,2-5,4 15,8-16,2 1,2-2,0	with spri	auxil ng	iary		300 400 470	7,4-8,2 3,2-4,4 1,2-2,0	500	0,5-0,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp 40°C (104 F)	Rotational Sa Fuel delivery characteristics			Starting fuel delivery 5 4a Idle stop				
}	cm³/1000 strokes	changed to) rev/min	rev/min	cm³/1000 strokes 5	rev/min	cm\$1000 strokes	rev/min	Control rod travel mm	
1200	95,0-97,0	1250-1260 (1245-1265)	1310	13,0-33,0	100 350	min. 170 16-23			
850	101 - 107 (99 - 109)								

Checking values in brackets

VDT- WPP 001/4

1. Edition

PES 8 P 100 A 921/5 RS 286

EP/RSV 350-1050 PO/409 DR

supersedes company

IHC - USA

s. WPP 110/2, 3. Edition

engine

008 TVD

1 - 8 - 4 - 2 - 7 - 3 - 6 - 5 je 45°!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO

2.8 + 0.1

mm (from BDC)

(Ckecking + 0,15)

					•	,00
Rotational speed	travel		Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min		cm¥100 strokes	100 strokes	mm	cm³/100 strokes	mm
1	2	3	4	2	3	6
1050	9,8	11,1-11,3	0,3			
350	5,4	1,65-2,25	0,66			
						\

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

P 0/409 DR

	<u>-</u>				1 0/403 DK						
r rated speed	l revimin	Interme	diate rated	d speed	4	Lowe	er rated speed	(3) to	rque control		
Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	1 /	Control rod travel mm		
					ca.26	350	6,0	4000			
1150 1100	6,6-9,4 11,8-13	•		ıxılıa	ry 	150	19-21	Į.	0 1,3-1,4		
1200 1240	1,0-5,2 1,0-2,0			iary		350 430 300	6,0 1-2 8,2-9,6	500	1,3-1,4		
	Control rod travel mm 2 1050 1150 1100 1200	mm rev/min 2 3 1050 15,7-16,3 1150 6,6-9,4 1100 11,8-13 1200 1,0-5,2	Control rod Control rod travel mm mm rev/min 2 3 4	Control rod Control rod travel mm mm rev/min 2 3 4 5 5 1050 15,7-16,3 1150 6,6-9,4 1100 11,8-13 spring 1200 1,0-5,2 with auxil	Control rod Control rod	Control rod Control rod travel mm rev/min 2 3 4 5 6 Control lever deflection in degrees 7 1050 15,7-16,3 without auxiliary ca.26 with auxiliary 1200 1,0-5,2 with auxiliary 1200 1,0-5,2 with auxiliary 1200 1,0-5,2 with auxiliary 1200 1,0-5,2 with auxiliary 1200 1,0-5,2 with auxiliary 1200 1,0-5,2 with auxiliary 1200 1,0-5,2 with auxiliary 1200 1,0-5,2 with auxiliary 1200 1,0-5,2 with auxiliary 1200 1,0-5,2 with auxiliary 1200 1,0-5,2 with auxiliary 1200 1,0-5,2 with auxiliary 1200 1,0-5,2 with auxiliary 1200 1,0-5,2 with auxiliary 1200 1,0-5,2 with auxiliary 1200 1,0-5,2 with auxiliary 1200 1,0-5,2 with auxiliary 1200 1,0-5,2 with auxiliary 1200 1	Control rod Control rod travel mm rev/min 2 3 4 5 6 Control lever deflection in degrees 7 8 1050 15,7-16,3 without auxiliary 150 200 1200 1,0-5,2 with auxiliary 350 430 430 100 1	Control rod Control rod Control rod travel mm rev/min 2 3 4 5 6 Control rod	Control rod Control rod Control rod ravel mm rev/min 2 3 4 5 6 7 6 3 6 6 7 100 11,8-13 1200 1,0-5,2 1240 1,0-2,0 spring 10 Control rod Control rod rev/min rev/min rev/min rev/min mm rev/min moderates 350 6,0 100		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull load stop	6 Rotational- speed limitat	11301	uel delivery naracteristics	Starting Idle	fuel delivery 5	(4a) Idi	e stop
rev/min	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min	cm³/1000 strokes	rev/min	cm ⁹ 1000 strokes	rev/min	Control rod travel mm
1050	111,0-113,0 (109,0-115,0)	1090-1100*	750	123,0-127,0 (121,0-129,0)	100	min.170 16 - 23		
					1150	15,0-35,0		

Checking values in brackets

Test Specifications Fuel Injection Pumps 1 and Governors

VDT-WPP 001/4

2. Edition

PES 6 P 110 A 320 RS 317 ROV 375-1100 PA 200 KR

supersedes"

company Allis Chalmers Typ: 11 000

Test instructions for RQV ... K governors WPP 001/4-3rd supplement -Testing with EFEP 182 ("S-nozzles)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,8 + 0,1Port closing at prestroke

(Ckecking $^{+}$ 0,15)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1090	10,7	13,8-14,0	0,4			
375	4,5	1,0-1,6	0,4			
	•					
		<u> </u>				

mm (from BDC)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	rev/min	Control rod (18	Intermediate Degree of deflection	rated sp	eed Control rod travel	Lower rated Degree of deflection	speed	Control rod	Sliding s	leeve travel
of control lever	rod travel mm 2	mm rev/min (2)	of control lever	rev/min 5	mm 4	of control lever 7	rev/min 8	mm 3 9	rev/min 10	mm t1
ca.66	1100 1140- 1215- 1300			-	-	ca.20	375 100 320- 530-	4,4-4,6 min.14 520 590 2,0	800 1130 1300	0 - 1,4 2,8-3,4 5,0-5,4 830 end (11)

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros Test oil ten	d stop np. 40°C (104°F) 2	intermediate speed	itermediate speed		ldle switchir	ng point	Torque-control (5 travel Control re travel		
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	tev/min	cm ³ /1000 strokes	rev/min	mm	
1	2	3	4	5	6	7	8	9	
LDA	0,6 bar						1090	10,7	
1090	138,0-140,0	1140-1150*			100	95-135	600	11,1-11,2	
600	150 - 154				375	10,0-16,0			
				Char	ge-ov	er point 200	300U,	min ./	

Checking values in brackets

1. Edition

PES 6 P 110 A 320 RS 318

ROV 300-1025 PA 173 KR

Ällis Chalmers company 11 000

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

nm (from BDC)	' -	0,	(

Rotational speed rev/min 1	peed Control rod Fuel delivery		Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1015	8,7	9,0-9,2	0,4			
300	5,3	1,9-2,5	0,4			

Adjust the fuel delivery from each outlet according to the values in [

RQV 300-1025 PA 173 KR RQV 300-1000 PA 217 KR

B. Governor Settings

Upper rated s	speed			Intermediate rated speed			Lower rated	speed	Sliding sleeve travel		
deflection	rev/min Controt	Control rod travel	18	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel	G.1.G.1.V.	1
of control lever	rod travel	mm fev/min	(28)	of control lever	rev/min	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
ca.66	1025 1300 1055- 1065 1095- 1125	7,7	,8 ,0				1	300 100 400- 460 320- 390	5,2-5,4 min.6,8 2,0	380 550 1000	1,8-2,6 3,8-4,6 7,5-7,9

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed (2b) timitation intermediate speed	I THE TOTAL OPERATE LEFT		Starting Idle switchir		Torque- travel	Control rod	
rev/min	cm³/1000 strokes	rev/min 4a	rev/min cm³/1000 strokes rev/min cm³/1000 strokes		cm³/1000 strokes	rev/min	travel mm		
1	2	3	4	5	6	7	8	9	
318 /	173 KR:				100	95 - 135		8,65-8,75 9,35-9,45	
1015	90,0-92,0	1055-1065			300	19,0-25,0			
700	93 - 97						•		
						over point 50 min-1			

Checking values in brackets

VDT-WPP 001/4

1. Edition

PES 6 P 110 A 320 RS 318

300-1000 PA 217 KR

supersedes

company

Allis Chalmers 11 000

engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2.8 + 0.1

(+ 0,15) mm (from BDC) - 0,05)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
990	10,0	12,0-12,2	0,4			
300	5,3	1,8-2,4	0,4			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

RQV 300-1025 PA 173 KR RQV 300-1000 PA 217 KR

Upper rated s	peed		Intermediat	e rated sp	eed	Lower rated	speed		Slidings	ieeve travel
deflection	rev/min Control rod travel	(LRAAG)	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Shamy s	1
	mm	rev/min (2	Blever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.66	1000 1030- 1040 1085- 1115 1250	0.0	-	-	-	ca.10	300 100 400- 460 320- 390	2,0		1,8-2,6 3,8-4,6 7,5-7,9

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oit tem		Rotational-speed 2b limitation intermediate speed	Fuel deliv	very characteristics 58	Starting Idle switchir		Torque- travel	control 5
røv/min 1	cm ³ /1000 strokes	revimin 4a)	rev/min 4	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm 9
318 990 700	/ 217 KR: 120-122 121-125	1030-1040*			100 300	95,0-135,0 18,0- 24,0	990 700	10,0 9,95-10,1
			·	Cha	nge-o	ver point 150	-250m	in-1 .

Checking values in brackets

1 mm less control rod travel than col. 2

VDT-WPP 001/4 **40**

2. Edition

PES 8 P 100 A 921/5RS 286

RQV 300-1300 PA 304 KR

supersedes -

company IHC - USA

DVT 800

Test equipment as per VDT-WPP 110/2 3. Edition

1 - 8 - 4 - 2 - 7 - 3 - 6 - 5 je 45°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,8+0,1

mm (from BDC) $\binom{+0,15}{-0,05}$ - Ckecking)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control red travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	10,2	11,4-11,6	0,3			
300	5,0	1,7- 2,1	0,3			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQV .. 304 KR

Upper rated :	speed			Intermediate	rated sp	eed		Lower rated	speed		Slidings	ieeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	(2a)	Degree of deflection of control lever	rev/min	Control root travel	d (4)	Degree of deflection of control lever	rev/min	Control rod travel		(1)
1	2	3		4	5	6	\cup	7	8	9	10	11
ca.66	1320 1400 1520 1640	15,0-1; 9,5-1; 0,0-	3,7		-	-		ca.10	540 680	7-8 2,2-3,8 0,2-1,3 0 4,1-6,2	250 500 800 1320 1520- 1640	0,4-1,4 2,8-3,4 4,4-4,8 8,2 end (11)

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed 2b limitation intermediate speed			Starting Idle switchir	$\mathbf{O}_{\mathbf{I}}$	Torque- travel	Control (5)
rêv/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min.	travel com
1	2	3	4	5	6	7	88	9
LDA 1300	0,85 bar	1340~1350*			100 300	180-230 17- 21	1300 900 700	10,4
900 800	(112 - 118) 118 - 124 84 - 88	(1335-1355)		(hange 170-	-over point 240 min ^{- 1}		

Checking values in brackets

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 2. Edition

<u>En</u>

PES 8 P 100 A 921/5 RS 286

RQV 300-1300 PA 305 KR

supersedes

company:

I H C - U S A DVT 800

Test equipment as per VDT-WPP 110/2 3. Edition

1 - 8 - 4 - 2 - 7 - 3 - 6 - 5 je 45°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2.8 + 0.1

 $\begin{pmatrix} + 0.15 \\ - 0.05 \end{pmatrix}$ - Ckecking

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1300	9,5	10,7 - 10,9	0,4			
300		1,5 - 2,1	0,3			
	ļ			1	}	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQV .. 305 KR

Upper rated	speed			Intermediate	rated sp	eed	Lower rated	speed	•	Siidina s	leeve travel
Degree of deflection of control	rev/min Control rod travel		(1a)	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1
lever 1	mm 2	rev/min 3	(28)	lever 4	rev/min 5	mm (4)	lever 7	rev/min 8	mm (3) 9	rev/min 10	mm 11
ca.66	1320 1400 1520 1640	15,0-17 9,5-13 7,3 0		-	•	-	ca.10	100 400 540 680 580 300	•	250 500 800 1320 1520 1640	0,4-1,4 2,8-3,4 4,4-4,8 8,2 end (11)

Torque control travel a =

mm --- Sect. C, Col. 8

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed 2b timitation intermediate speed	high idle s	rery characteristics 5a peed 5b	idle	fuel delivery 6	Torque- travel	control 5 Control red travel
rev/min	cm³/1000 strokes	rev/min 48	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
LDA 1300 850 800	0,85 107-109 128-134 83-91	1340-1350* (1335-1355)			100 300 Chang 170-	190 - 230 15 - 21 e-over point 240 min-1	1300 850 700	11,9

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 1 and Governors

VDT-WPP 001/4

2. Edition

PES 8 P 100A 921/5RS 286

ROV 300-1300 PA 308

supersedes

Test equipment as per VDT-WPP 110/2 3. Edition

company: I H C - U S A engine DVT 800

1 - 8 - 4 - 2 - 7 - 3 - 6 - 5 je 45°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2.8+0.1

 $\frac{1}{mm \text{ (from BDC)}}$ (+ 0,15 -Ckecking)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	12,15-	13,8-14,0	0,4			
300	12,25 5,0	1,6- 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQV ..308 KR

deflection of control	peed rev/min Control rod travel mm	Control rod (1a travel mm rev/min (2a	of control	rated sp	control rod travel	Lower rated Degree of deflection of control lever	speed rev/min	Control rod travel	Sliding s	leeve travel
ca.66	1320 1400 1520 1640	15,0-17,5 9,5-13,7 0- 7,3		-	-	ca.10	100 400 500 580 680 300	7 - 8 2,2-3,8 0,8-2,1 0 -1,1 0 4,1-6,2	250 500 800 1320 1520 1640	0,4-1,4 2,8-3,4 4,4-4,8 8,2 end (11)

Torque control travel a = --- Sect. C, Col. 8

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel deliv	very characteristics 5a speed 5b	Starting Idle switchin		Torque- travel	control 5
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min 4	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min 8	travel mm
LDA 1300 900 800	0,85 bar 138 - 140 132 - 138 86 - 97	1340-1350*			100 300 Chang 170-	190 - 230 16 - 20 2-over point 240 min-1	1300 900 700	12,2 11,7

Checking values in brackets

VDT-WPP 001/4 2. Edition

PES 8 P 100 A 921/5RS 286

RQV 300-1300 PA KR 309..

supersedes company 1 H C - U S A

Test equipment as per VDT-WPP 110/2 3. Edition

1 - 8 - 4 - 2 - 7 - 3 - 6 - 5 je 45°

engine DVT 800

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,8+0,1

mm (from BDC)

 $\binom{+0,15}{-0.05}$ Ckecking)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	11,3	12,9-13,1	0,4			
300	(1,7- 2,3	0,6			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQV..309 KR

Upper rated t	speed			Intermediate	rated sp	ed	Lower rated	speed		Stirlings	leeve travel
Degree of deflection of control	rev/min Control rodtravel	Control rod travel	(19)	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	3g 3	1
lever	mm	rev/min	(2B)		rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	_	4	5	6	7	8	9	10	11
ca.66	1320 1400 1640 1520	15,0-17 9,5-13 0 0 - 7		-	-	-	ca.10	100 400 540 680 300 580	7 - 8 2,2-3,8 6,2-1,3 0 4,1-6,2 0-1,1	500 800 1320 1520	0,4-1,4 2,8-3,4 4,4-4,8 8,2 end (11)

Torque control travel a =

--- Sect. C, Col. 8

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roi Test oil ten		Rotational-speed 2b firmitation intermediate speed			Starting Idle switchin	\mathbf{O}	Torque- travel	Control (5)
rev/min	cm ³ /1000 strokes	rev/min 48	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	travel mm 9
LDA 1300 900 800	0,85 bar 129 - 131 127,5-133,5 0 bar 103 - 111	1340-1350*		(min 170 17 - 23 -over point 240 min-1	1300 900	1

Checking values in brackets

VDT-WPP 001/4
1. Edition

•

PE 6 P 120 A 420 LS 314

RQV 300-950 PA, 314 KR

supersedes

Allis Chalmers

company

25 000

enginë

Testing with T nozzles and fuel lines 8x2x1000 according to WPP 110/2!

estoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Control rod

9,6

4,8

Port closing at prestroke

Rotational speed

950

300

rev/min

2,8+0,1

Fuel delivery

cm³/100 strokes

20,4-20,6

1,75-2,35

mm (from BDC) + 0.15 - 0.05

Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
0,6			
0,6			
!			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed Degree of rev/ deflection of control lever mm	/min ntrot travet	Control rod 1a travel mm 2a 3	Intermediate Degree of deflection of control lever	rated spe rev/min 5	Control rod travel mm 4	Lower rated Degree of deflection of control lever 7	rev/min	Control rod travel	Sliding s rev/min 10	mm
110	950 000 100 150 250	15,2-17,5 12 -15,1 4,5- 9,5 0 - 6,6		-	-	ca.10	270 350 380 400	5,8-8 3,0-5,2 2,5-3,8 2,2-3,8	550	1,8-2,7 3,8-4,2 7,5-7,9 end(1)

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Controt-rod Test oil terr		Rotational-speed (2b) limitation intermediate speed		Fuel delivery characteristics 5a Starting fuel of lide switching po		O	Torque-	control 5
rev/min	cm³/1000 strokes	rev/min 48	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm 9
314 mi 950	t 314 KR: 204-206	990-1000*			100 300	130 - 170 17,5-23,5	750 950	9,7 9,6
750	194,5-197,5					e-over point 250 min ⁻¹		./.
				Į.				,

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.75

K24

BOSCH

WPP 001/4 1. Edition

Εn

PES 6 P 110 A 420 LS 3037

Port closing at prestroke

RSV 425-1100 P2/424DR

supersedes

company engine

DTI-817C 420 HP

IHC

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1

(1,95-2,15)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm¥100 strokes	cm³/ 100 strokes 4	mm 2	cm³/100 strokes	mm 6
1100	14,0	25,7 - 25,9	0,4			
425	5,5	3,0 - 3,5				
		٠				
ı						

Adjust the fuel delivery from each outlet according to the values in \Box

B. Governor Settings

Upper rated speed rev/min ree of Control rod Control rod travel travel		Intermediate rated speed			(4)	Lawe	3 Torque control		
vel n	travel mm rev/min	4	5	6	Control lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
300	0,3-1,7				ca.21	425	5,5	1100	0
=3,4						100 200		700	0,7-0,9
						430-		500	0,7-0,9
3 =	900 3,4 40-11	travel mm rev/min 3 000 0,3-1,7	travel mm rev/min 3 4 600 0,3-1,7 3,4 40-1150=13+0,5	travel mm rev/min 3 4 5 300 0,3-1,7 3,4 40-1150=13+0,5	travel mm rev/min 3 4 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	travel mm rev/min 3 4 5 6 Control lever deflection in degrees 7 ca.21 40-1150=13+0,5	travel	Control Itravel Itra	Control Italy It

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(a)	III-load stop	6 Rotational- speed limitat	ii Jai	uel delivery naracteristics	Starting I	fuel delivery 5	4a) td	e stop
Test oil te rev/min	emp_40°C (104°F) cm³/1000 strokes	Note changed to) rev/min	rev/min	cm³/1000 strokes	rev/min	cm\$ 1000 strokes	rev/min	Control rod travel mm
LDA 1100 700	1,00 bar 257-259 264-270 0 bar	1140-1150*	LDA 1195- 1225	1,00 bar 4,0 mm	100 425	180-205 33- 39		
800	149-157							

Checking values in brackets

* 1 mm less control rod travel than col. 2



VDT-WPP 001/4 Edition 29.8.74

En

PES 6A 90 D 420 LS 2461

RSV 375-1050 A2B567DR

supersedes 11.3.70,10.2.71 company C a s e 22.4.71

engine A451ZDT

Test with case overflow valve!

Pay attention to special governor setting!
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15+0,1

mm (from BDC)

Rotational speed rev/min 1	Control rod travel	Fuel delivery cm¥100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm ⁹ /100 strokes 3	Spring pre-tensioning (torque-control valve)
1050	12,5	9,6-9,7	0,3			
375	7,4	15 - 22	0,2			

Adjust the fuel delivery from each outlet according to the values in [

.B. Governor Settings

1 Uppe	er rated speed		Interme	diate rated	i speed	(4)	Lowe	er rated speed	(3) 10	orque control
Degree of deflection of control lever	Control rod travel mm	control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
ļ '	-	13	*	T ₂	10	ļ <i>'</i>	8	9	10	11
ca.39	1100	10 -11,4	witho	out aux	xiliar	ca.10	375	7,4	1050	n
	1090 1280	12,4-12,8 0,2- 1,2	sprin				150 375	19 - 21	900	0,2 - 0,3
	1130 1200	6,2- 7,4 1 - 3	with sprir		iary		180	7,4	500	0,3 - 0,6
(2a)			shi ii	<u></u>			320	11 -13,6		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ıll-load stop	6 Rotational- speed limitat	Ga Fuel delivery characteristics		Starting	fuel delivery 5	4a Idle stop	
rev/min	emp. 40°C (104°F) cm ³ /1000 strokes 2	Note changed to) rev/min 3	rey/min 4	cm [®] /1000 strökės 5	řev/min	cm [#] /1000 strokes 7	rev/min 8	Control rod travel mm
1050 750 650	96 - 97 99 -102 max.102	1090-1105 *	1150	12 - 18	100	12 - 13	375	15-22 cm³/ 1000 strokes

Checking values in brackets

40

VDT-WPP 001/4

Εn

PES 4A 95 D 420 LS 3023

RSV 375-1100 A2B651DR

supersedes (9) 31.7.73

company Case

engine A 336 BDT

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel	Fuel delivery	Difference cm³/ 100 strokes	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
1100	11,3	12,2-12,5	0,3	2	3	6
375	5,9	1,7- 2,1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV .. 651 DR

Degree of deflection of control lever	r rated speed Control rod travel mm 2		Interme	diate rated	speed	Control lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	3 To	rque control Control rod travel mm
ca.38	1140 1180 1300 1220 1150	11 -11,6 4,6- 6,2 0,3- 1,0 1,2- 3 9-10,2				ca.16 ry sprir spring	375 9 150 375 450 550 330	5,9 19 - 21 5,8-6,0 1,4-3,4 0 - 1 9,8-13	1100 800 460	0 0,2-0,3 0,2-0,5

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	Rotational- speed limitat		Fuel delivery characteristics		fuel delivery 5	4a Idle stop	
rev/min	emp 40°C (104°F) cm [®] /1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ⁹ /1000 strokes 7	rev/min 8	Control rod travel mm
1100 750 650 (inr	122 - 125 122 - 128 max. 126 ease by 1,0 cr	1140-1155* (1135-1160) n ³ !)	1200	13 - 19	100	13 - 14	375	17-21 cm³/ 1000 strokes

Checking values in brackets

VDT-WPP 001/4

4. Edition

En

PES 6 P 110 A 720 RS 296

EP/RSV 400-1050 PO/414 DR

supersedes 6.75 company John Deere 6619 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8 + 0,1

mm (from BDC)

(Ckecking $^{+0,15}_{-0,05}$)

see page 3

estoil-ISO 4113

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	:nm (2)	cm¥100 strokes	cm³/ 100 strokes	mm	cm³/100 strokes	mm
1		3	4	2	3	6
1050	12,8	18,7 - 19,0	0,2			
400	6,8	1,9 - 2,5	0,4			
L			<u> </u>			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV .. P 0/396DR, 414 DR

1 Uppe	er rated speed	l rev/min	Interme	diate rated	speed	Lower rated speed			3 Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control lever deflection in degrees 7	rev/min	Control rou travel mm	rev/min	Control rod travel mm 1.1	
ca.39	1050 1100 1150	15,6-16,2 8,4-10,8 3,6- 5,6	witho	ut aux	iliary	ca.20 spring	400 100	6,3 19 - 21	1050	0	
(2a)	1200 1250	0,3- 2,9 0,3- 1,5	with	auxili	iary s	pring	400 520- 580	6,8 2	680 500	0,3-0,5	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp=40°C (104°F)	Rotational speed limitat	11.30	iel delivery aracteristics	Starting fuel delivery 5			Control roa	
rev/min	cm³/1000 strokes	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm\$1000 strokes 7	rev/min 8	travel mm 9	
LDA 1050 630 550	1,0 bar 187 - 190 185 - 192) 193 - 197 191 - 199) 112 - 120	1095-1105 (1090-1110)	1150	47 - 57	100	min.170	400 ·cm³/	19-25 1000 Strokes	

Checking values in brackets

40

VDT-WPP 001/4 2. Edition

<u>En</u>

PES 6 P 100 A 720 RS 1010

EP/RSV 400-1050 P7/413DR

supersedes John Deere company 6531 engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,4+0,1

Festoil-ISO 4113

mm (from BDC) $\binom{+0,15}{-0.05}$

Rotational speed	Control rod	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning
rev/min 1	mm 2	cm³/100 strokes	cm³/ 100 strokes 4	mm 2	cm³/100 strokes	mm 6
1040	13,1	14,9 - 15,1	0,3			
400	7,1	1,6 - 2,0	0,3			
					ĺ	
	<u> </u>		<u> </u>			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV .. P2/411D

Degree of deflection of control lever	cr rated speed Control rod travel mm	rev/min Control rod travel mm rev/min 3	Interm	ediate	rated speed	Control- lever deflection in degrees 7	Lowe rev/min 8	Control rod travel mm	rev/miri	rque control Control rod travel mm
ca.38	1070 1110	12,1 4,9	with	out (auxiliar	ca.17 y spring	400 100 400 450- 500	6,7 19 - 21 6,7 2	1040 750	0 0,7

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

9	all-load stop	6 Rotational- speed limitat	33 F.L	uel delivery paracteristics	Starting	fuel delivery (5)	(4a) Idi	e stop
rev/min	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm³/1000 strokes	rev/min	cm\$1000 strokes	rev/min	Control rod travel mm
LDA 1040 750	0,9 bar 149 - 151 163,5-166,5	1065-1075	1100	23 - 33	100	min.170	400	16 - 20
(inre	ase by · 2,0 cm	3!)					cm³/	1000 Strokes

Checking values in brackets

1.77

BOSCH

^{* 1} mm less control rod travel than col. 2

40

VDT-WPP 001/4

4. Edition

Εn

PES 6 P 110 A 720 RS 305

EP/RSV 400-1050 P2/415DR

supersedes 6.75

company John Deere 6619

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,8 + 0,1

mm (from BDC)

(Ckecking $^{+0,15}_{-0,05}$)

see page 3

Rotational speed rev/min	Control rod travel mm 2	Fuel deliverv cm\100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm ⁹ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1050	11,7	16,0-16,2	0,4			
400	6,3	1,9-2,5	0,4			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV .. P 0/396DR, 414 DR

1 Uppe	er rated speed		Interm	Intermediate rated speed			Lower	rated speed	3 Torque control		
Degree of deflection	travel	travel			1	Control- lever		travel		travel	
of control lever	mm 2	mm rev/min	4	5	6	deflection in degrees 7	rev/min 8	9 9	rev/min	11	
ca.39	1050	11,7				ca.20		6,1			
	1100 1150	10,7 6,0	with	out	auxiliar	y spring	100	19 - 21	1050 730	0	
							400 570	6,1	650	0,5 - 0,7	
(2a)							630	2,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop emp 40°C (104°F)	Note		iel delivery aracteristics	Starting I	uel delivery 5	4a) idi	e stop Control rod
rev/min	cm ³ /1000 strokes 2	changed to) rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm [#] /1000 strokes 7	rev/min 8	travel mm 9
LDA 1050 650	1,0 bar 160 - 162 170 - 174 0 bar	1095-1105	1150	47 - 57	100	min. 130	400 cm³/	19 - 25 1000 Strokes
550	88 - 96							

Checking values in brackets

* 1 mm less control rod travel than col. 2

5,76

WPP 001/4
1. Edition

En

PES 6 P 110 A 720/3 RS3036

RQV 300/600-900 PA453KR

supersedes -

company: M a c k engine: ETA 676 E

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,40-2,50

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	14,4	19,3 - 19,5	0,4			
300	5,5	1,5 - 2,5	0,4			
	-					•
I						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed		Intermediate	rated sp	eed	Lower rated	speed		Sliding sleeve travel	
Degree of deflection of control	rev/min Control rod travel	Control rod (18)	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Silvings	1
lever	mm	rev/min (2a)	lever	rev/min	mm 4	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.66	970	15,2-17,8	-	-	-	ca.18	Set 300	7,9-8,1	300 600	1,2-2,4 4,5-5,0
ca.54	13,4 4,0 0,1	940 - 950 1100-1130 1200				(3a)	400 570- 630= 250	3,8-5,2 2,0 9,8-11,3	960	8,3

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ros Test oil ten		Rotational-speed (2b) limitation intermediate speed	Fuel delivery characteristics 5a high idle speed 5b		idle	fuel delivery 6	Torque- travel	control 5
rev/min 1	cm³/1000 strokes	rev/min 48	rev/min	cm³/1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
LDA 900 600	1,6 bar 193-195 230-234 without pres 129-132	940-950* sure			100 300	120 - 280 15,0-25,0	900 800 700 600 500	:4,4 14,45- 14,65 14,7-14, 15,2-15, 14,95-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10,79

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1. Edition

PES 6 A 100 D 410

RS3027 EP/RSV 400-1100 A2B789DL

supersed€₹ company John Deere 6466A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,95-2,05(1,90-2,10)
Port closing at prestroke mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
ten/wiu	mm (2)	cm³/100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1100	10,9	10,7-10,9	0,3(0,6)			
400 525/550	+0,1	1,1- 1,5 C, 4-5	0,3(0,5) 0,4(0,7)			
			Port closin	g mark cyl	1 : 15° afte	port closing

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

(1) Uppe	er rated speed		Interme	ediate rat	ed speed	(4)	Lower	rated speed	(3) 10	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0			·	ca.30	400	6,3	1100	0
	×	= 5,75					100	19 - 21	525	1,45
ca.72	1100 1200 1250 1350	15,7-16,3 6,2- 9,4 1,4- 5,4 0,3- 1,7					400 480-600 550 320	6,2-6,4 1,8-4 0-1 10,6-13,2		.,

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	Rotational- speed limitat		uel delivery naracteristics	Starting fuel delivery 5 4a ldle stop			e stop
1	emp 40°C (104°F) cm ³ /1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ^{\$} /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100 525 550	(103 - 112) 116 - 119	1145-1155 (1140-1160)	1200	20,5 - 35,5	100	150-180	400 cm³/	11-15 1000 Strokes

Checking values in brackets

^{* 1} mm less control rod travel than col. 2

40

VDT-WPP 001/4

1. Edition

En

PES 6 A 100 D 420 LS3024 EP/RSV 375-1050 A2B785DR

supersedes - Case company A 504 F

Test with case overflow valve!
Pay attention to special governor setting!

engine (210 BHP)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 411

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cmi¥100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1050	12,2	14,3-14,6	0,3(0,6)			
375	(+0,1) 6,2 (±0,1)	1,55-2,15	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

.B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm 2	Control rod travel mm rev/min	Interme	diate rated	d speed	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	rque control Control rod travel mm
ca.42	1085 1100 1140	11,6-12,4 10 -11 5,8- 7	with	out aux	xiliar	ca.22 y	375 150	6,2	1050	0
(2a)	1180 1250	2,2-4 0,2-1,2		spring with auxiliary spring			375 450 550 280	6,2 2,4-4,2 0 - 1 10,4-12,8	700 500	0,1-0,3 0,1-0,3

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational- speed limitat		uel delivery naracteristics	Starting	Starting fuel delivery 5 4a idle stop			
rev/min	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min	cm³/1000 strokes	rev/min	cm ⁹ /1000 strokes	rev/min	Control rod travel mm	
1050 700 600	(140 - 149) 143 - 148 (141 - 150)	1090-1700* (1085-1105)	1165	25 - 31	100	130-140	375	6,1	

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4

2. Edition

En

PES 6 A 100 D 410 RS3025 EP/RSV 400-1100 A2 B765DL supersedes =

Test-pressure line 6 x 2 x 600 Inlet pressure 1.5 bar

John Deere company

6404 A

Manifold-pressure compensator (LDA) adjustment page 2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,05)

Festoil-ISO 4113

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery with 765 DL cm¥100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel	Fuel delivery cm ⁴ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10	10,4-10,6	0,3(0,6)		- -	
	(+0,1) 6,3 (+0,1)	1,2-1,6	0,3(0,5)			
750/550-	Sect. C, (ol. 4-5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

400-1100 A2B765DL

Degree of deflection of control lever	cr rated speed Control rod travel mm		Intermed	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm		Control rod travel (+0,1)
ca.43	1100 1110	15,7-16,3 15 -15,8		ut aux	ciliar	ca.21 y spring	200	6,3 19 - 21	1100	0
(2a)	1200 1350 1270	6,5- 9,5 0,3- 1,7 0,6- 4,2	with	auxili	iary s	pring	400 480 340 600	6,2-6,4 2,0- 4 9,5-12 0 - 1	750 500	0,5-0,6

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational- speed limital		uel delivery paracteristics	Starting Idle	fuel delivery 5	4a Idle stop	
rev/min	cm³/1000 strokes	Note changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ^{\$} /1000 strokes 7	rev/min 8	Control rod travel mm
LDA 1100 750 550	0,8 bar 103 - 107 101 - 109) 112 - 117 61 - 68	1145-1155 (1140-1160)	1200	26,5-36,5	100	155-175	400	6,3

Checking values in brackets

see page 2

* 1 mm less control rod travel than col 2

9.76

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Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 2. Edition

PES 6 A 100 D 410 RS3025 Test-pressure line $6 \times 2 \times 600$

EP/RSV 400-1050 A2 B786DL

supersedes -

Inlet pressure 1.5 bar

John Deere company 6404 A engine

Manifold-pressure compensator (LDA) adjustment page 2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,00-2,10

Port closing at prestroke (1,95-2,05)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm³∤100 strokes 3	cm³/ 100 strokes 4	mm 2	cm³/100 strokes	min 6
1050	11,1	11,45-11,65	0,3(0,6)			
400	(+0,1) 6,6 (±0,1)	1,3 - 1,7	0,3(0,5)			
Port clo	sing mark c	vl. 1 : 14" af	ter port cl	osing		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	er rated speed	rev/min	Interme	diate rated	speed	(4)	Lower	rated speed	3 Torque control		
Degree of deflection	Control rod travel	Control rod travel				Control- lever		Control rod travel		Control rod travel	
of control lever	mm 2	mm rev/min	4	5		deflection in degrees	rev/min 8	mm 9	rev/min	mm 11	
ca.43	1050	15,7-16,3		<u> </u>		ca.21	400	6,6	1050		
	1060 1150	14,8-15,6 6,5- 9,5	witho	ut aux	(iliar	y spring	100	19-21	750	1 - 1	
	1210	1,2-4,8					400 480	6,6 1,8-3,8	900	0,1 - 0,3	
29	1300	0,2-1,2	with	auxil	iary s	pring	600 340	0,1 9,6-11,6			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

9	ull-load stop emp 40°C (104°F)	Rotational- speed limitat	11301	Fuel delivery characteristics		fuel delivery 5	43 Id	Idle stop	
rev/min	cm ³ /1000 strokes 2	changed to) rev/min 3	rev/min 4	cm ⁹ /1000 strokes 5	rev/min	cm ⁹ /1000 strokes 7	rev/min 8	travel mm	
	0,8 bar 113 - 117,5	1095-1105 (1090-1110)		·	100	155 - 185	400	6,3	
750 550	121 - 126 49 - 55		1150	22 - 32					
330	19 33		1130			:			

Checking values in brackets see page 2

* 1 mm less control rod trave! than col 2

PES 8 A 75 D 320 RS 2463 RQV 300-1500 AB 913 D (2)* Inlet pressure 2,5 bar (1) See note 1,2,3 -page 3!

company: IHC engine: DV 550 C (1 - 180 PS)* (2 - 160 PS)* (3 - 200 PS)*

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod	(2,3) Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
1500	9,35	4,6 - 5,3	0,3			
1000	(±0,05) 10	4,35-4,95				
300	9,3	0,1 - 1,5 - 3,6 - 4,6 -	-(cyl.1- -(cyl.2-			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQV.. 913DR

Upper rated: Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min 3	(1a) (2a)	Intermediate Degree of deflection of control lever		Control rod travel mm 4	Lower rated Degree of deflection of control lever 7	speed rev/min 8	Control rod travel	Sliding s	mm
ca.68	1600 2000 1700 1800	15,0-18, 0 9 - 14 3 - 9,	ļ	-	-	-	ca.10	200 450 600 870 300	7,4-8,2 2,7-3,4 1,5-2,6 0 5,4-7,3	1600	8,3

Torque control travel a = 0,3 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed (2b) limitation intermediate speed	Fuel deliv		Starting tdle switchir	. •	Torque- travel	control 5	
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min 8	travel mm 9	
1500 100	49 - 51 46 - 49	1605-1615 7 - 8mmRW		7 - 8 mm e-over point 30U/min 250)	300 300	17 - 21 cyl.2-3-5-8 0 cyl.1-4-6-7	1500 1000		

Checking values in brackets

VDT-WPP 001/4
2. Edition

En

PES 6 A 85 D 420 LS 2460

EP/RSV 375-1100A 2 B 636 DR

supersede 22.3.73
company Case
engine 2504 BD

Test with case overflow valve!
Pay attention to special governor setting!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15+0,1

Testoil-ISO 4113

mm (from BDC

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cmil/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm\$100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,8	9,2 - 9,3	0,3			
375	7,9	1,8 - 2,4				

Adjust the fuel delivery from each outlet according to the values in

.B. Governor Settings

1 Uppe	er rated speed		Intermediate rated speed			Lower rated speed			3 Torque control		
Degree of deflection of control lever	travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
ca.47	1150 1180	11,4-12,4 6,4- 8,4	without auxiliar spring with auxiliary			yca.23	375 150 375	7,9 19 - 21	1100 900	0 0,7-0,8	
29	1140 1220 1300	12,6-13,3 1,6- 4,4 0,3- 1,0					620 280	7,7-8,1 0 -1,0 11,8-14	500	0,9-1,0	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational speed limitat	39 F.	iel delivery paracteristics	Starting	fuel delivery 5	4a Idle stop	
rev/min	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ² /1000 strokes 5	rev/min	cm\$1000 strokes	rev/min	Control rod travel mm
1100 750 650	91 - 94 102 - 107 max. 106	1140-1155*	1200	14 - 20	100	12,5-13,5	375	18-24 cm³/ 1000 . strokes

Checking values in brackets

* 1 mm less control rod travel than col 2

8.74

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